114 much as possible the customary ways of doing things, and though one could
191 not hope for an unchanging or an isolated village, one could find a vil-
184 lage relatively so, even if, as was the case with all the villages, they
had felt the effects of the deadly campaign for Okinawa.

On one of these trips, I talked with the headman of the village of Hanashiro and then with the officials in the nearby village office of Oushichan, and concluded on the basis of what I saw of the agriculture and the conditions described by these officials, that this small village would be a satisfactory selection. In the beginning, an epidemic of
encephalitis made it wise to be away from the village at night and for
[164] the first month the investigations were confined to daytime work. This
was a serious handicap which I tried to overcome later in the tour by
living in the village.

While working in Hanashiro, I had frequent occasion to pass the villages of Minatogawa-ikku and Minatogawa-niku, and I was impressed
with the opportunity to study the life of a village in which agriculture
[226] did not predominate, and in which the chief emphasis was on fishing and
stonecutting. I therefore decided to include the fishing village, and
[324] took up residence there late in August 1951, making frequent trips on
the side to Hanashiro.

As interest and awareness increased, I became convinced that another
type of village should be added to the agricultural and fishing selections.
[361] It should be one in the northern forested area (the Kunigami region).
After discussing this with American and Okinawan forestry officials, I followed their suggestion and lived in the village of Matsuda in Ginosa township. It proved to be a good choice, with the possible reservation that Matsuda is somewhat of a model village whose conditions might be better than the average.

The villages needed to be small enough for one man to study. And they proved to be admirable communities for realising my original intention of showing similarities and contrasts in an agricultural village, a fishing village, and a village in a forest setting.

121 The results do not constitute a complete ethnography of each of the
villages. Such was not my intention, and this could not have been done in
the time available. The material has been organised around four central
subjects: (1) the nature of the family system and its influence through
[128] inheritance on land tenure and land use, (2) ways of life as illustrated
in the studies of the agricultural, fishing-stonecutting, and forest communities, (3) daily family life as a concrete expression of the family system, and (4) wider community relationships, including political and cooperative organisations, education, and religion.

The basic theme is that a fruitful approach to the study of modern
cultures lies in the borderland area between the social and the natural
sciences, and that, in the case of these Okinawan villages, the study
[311] would take the form of discovering in what ways the people are using their
natural environment and the manner in which the culture has changed and

altered that environment to its own uses. I hope that this will result 121
in a broader and a deeper understanding of the manner in which an old 311
culture, subject to frequent changes, with a long history of settlement,
has, through its social organization, used and is using its chief
resources, the cultivated land, the fish in the seas, the deep stones
imbedded in its earth, its forests, and its waters.

There were certain obstacles in carrying out this plan. As everyone 121
knows who has attempted such tasks, after the first few days the apparent
simplicities of village life vanish before one's eyes, and he is left with
a mass of observations whose ramifications lead in every direction. There
is simply no limit to the courses of inquiry which these "simple" villages
open up.

There was the problem of distinguishing between what was customary 121
and carried on for this reason and what was of basic living importance in 183
the culture. This difficulty disappears for those who believe that every 184
trait has some significance if it has survived, but this neglects the
point that many beliefs and customs belong to segments of a population.
To one group what may be done as a matter of form may be of close
personal importance to another. Both points are significant, for to do
what one is expected to do, even if a pure form, is in itself a fact of
importance. This applies especially to religious observances and
anniversaries in honor of the dead. In some cases, they seemed perfunctorily
performed, particularly among the young and the better educated. The
survival of certain beliefs is due to their preservation by segments of the [562]
population, and women seem to be the chief carriers of the devotional and
religious tradition. Real differences, too, seem to lie in age groups, [561]
with the dividing line at about fifty-five to sixty years. Many under
this age have little understanding of the history or traditional culture.
The old, and particularly the old women, have carried on.

Observation in itself is deceptive. Even the grasses, shrubs, and 121
pine trees on the hillsides seem to be a more or less permanent part of
the natural environment. Yet these were greatly changed during the war
and in local areas grasses have succeeded to places formerly occupied by
the pines.

The information was obtained in the following manner. (1) Personal 12
conversations in the Japanese language with residents of the villages.
Much of the information was secured by accompanying people to their work,
attending their parties, visiting shops, rice and sugar mills, and asking
questions about the things seen. (2) Direct personal observation,
supplemented by conversations to check the accuracy and the significance of
these observations. (3) Information gathered from village land records,
statistics, land maps, and family registers. Later there was considerable
difficulty in securing comparability in the statistics. For this reason
the attempt to present quantitative data was in some cases abandoned in favor
of a general qualitative description. (4) General discussions with the
personnel of the Civil Affairs Administration and with Okinawans.
(5) Personal impressions, but these have been included only when they 127
are based on repeated observation. (6) In the historical and general

The settlement

131 pattern is similar to that of the central part. Villages are scattered
631 throughout the area with population distribution comparable with the cen-
133 tral area. Before the war, the densities here were over one thousand per
36 square mile,[4] actually considerably more if the uninhabitable lands are
[161] subtracted.

● 311 How long this settlement pattern and these regional differences have existed is difficult to say. In studying contemporary environments, like Okinawa, which bear the imprint of long human settlement, it is useful to try to reconstruct the nature of the landscape before the interference of man. At one time, the whole island, with the exception of stony, rocky, and shallow soils and beach and marsh land was covered with forest. There are now no virgin stands. "It is evident that the present forest has been cut over many times. There seems to be no part of the island in which the forest cover has not been disturbed in some way by man."[5] In this light, the regional differences between the forested north and the deforested south are the work of man.

361 The oldest settlements are thought to have been in the Naha and
Shuri areas. Kudaka Island, off the southeast coast, according to one
legend, was the site of the supernatural creation of the Okinawan people.
[173] The town of Unten, the Port Melville of Captain Hall and Commodore Perry,
was, in one version, the scene of the landing of the Japanese warrior,
[174] Tametomo, but this was in the twelfth century. Northern areas were in-
habited prior to the unification of the island in the twelfth century be-
[161] cause they had their own regional chieftans before this. But the popula-
tion of the north, at least up to the war, has been sparse and scattered.
If the forests are any indication, it has been the central and southern
regions which have been the scenes of longest settlement. Probably the
[177] settlement pattern had not changed much until the Japanese interventions
of the nineteenth century and the great changes coming with the recent
[178] war, and with the extensive modifications which the Americans have made
in the landscape of the central region.

3

General Climatic Conditions

132 In the Köppen system, Okinawa has a humid subtropical climate. It is a rainy climate with no marked dry season; it has a mild winter and the temperature of the warmest month is over 71.6°F. The average annual temperatures in Naha range from 61° for January and February to 82°F for July and August, and the range from the mean minimum of 55° in February to the

[Text continues top of p. 14--analyst]

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[4] See the population distribution maps in CA Handbook, Ryukyu (Loo-choo Islands, 48-49.

[5] Okinawan Forests. (Prepared by the USGS, Military Geology Section under the direction of Office of the Engineer, GHQ, Far East Command), 1948, 2.

northern Philippines and Formosa. From Formosa, these warm waters continue 132
northeast between the Ryukyus and the shallow parts of the China Sea. In
August the current flows on both sides of the islands. The behavior of the 133
Japanese current in this area is strikingly similar to that of the Florida
current of the Gulf Stream.[6]

The Ryukyus are in one of the great typhoon areas of the world. The 132
season is from May to October, times of low atmospheric pressure, when the
average range is from 1007 to 1015 millibars compared with a November-April
range of 1015 to 1021 millibars. The period usually described as the typhoon
season actually represents minimum expectations, for, as the table shows,
typhoons have occurred in every month of the year, with the lowest incidence
in April. The range from a minimum of twelve to a maximum of forty-five
shows the reasons for uncertainties and the uneasiness with which the weather
is regarded in the islands. The period of most frequent typhoon incidence [731]
coincides with the growing season, and violent typhoons can be expected as
a matter of course prior to the winter rice harvest.

In typhoons, heavy winds, and gales, damage from salt water spray, 132
especially in cultivated strips along the coast, can be expected. Local
topography has a determining influence on the direction and area of spray 133
damage, but some farmers in the Nagamo area estimated that spray damage [311]
had extended inland in some cases for two miles. There is also the problem
of the saline content of rainwater.

Okinawa has a marine climate modified from what one might expect of 132
its latitude by the monsoon regime which affects southeast Asia. When we
understand this, the nature of the rainfall and its distribution, the
possibility of drought, and of typhoons and their destructiveness, we are
are in a better position to appreciate the difficulties under which agriculture must be practiced.

[6] Sverdrup, Johnson, and Fleming, The Oceans, 718-22 and the literature there cited. Wust has pointed out in detail the similarities between the two currents. One difference is that the salinity of the Kuroshio is less and its waters are subject to excessive cooling in winter by the cold winds from the continent. See also Nuttonson, as cited, 20.

4

The Disappointing Soils

Okinawa is small and has a large population. Agriculture has been and will continue to be the main source of livelihood for the people. For this reason, a consideration of the nature of its soils has practical interest. The soils of Okinawa fortunately have recently been surveyed, classified, mapped, and computations made of the approximate areas of each soil type.[7] 134 [241]

	Estimated Acreage on Okinawa Island
134 133 [311]	
1. The alluvial soils of the coastal flats and flood plains (Akamaru and Aha soils). About 80% of these are the gray clays given over to rice fields, and 20% in the brown and well drained Aha soils. These soils have no distinct profile, average more than six feet in depth, are slightly to medium acid. Deep and fertile, they are composed of loam, clay loam, and sandy loams. They are scattered over the island, frequently at the heads of bays or inlets where the short rivers come to the sea. The most conspicuous occurrences are in the Northern region, including the Motobu peninsula. They are much less frequent in the central district, and scarce in the southern district, with the most conspicuous spots along the Minatogawa river and the headwaters of a small stream south of Minatogawa. These soils are level or almost level (surface gradient 0-1.3%). The water table is seldom more than two feet below the surface.	10,900

[TEXT CONTINUES ON TOP OF P. 19 -- ANALYST]

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[7] The following materials have been used: (1) Soils of Okinawa, 11 sheets, controlled photomaps, with soil map overprint, prepared under the direction of the Engineer, Far Eastern Command, by various staff members of the US Geological Survey, Dept. of the Interior, and the Soil Survey of the USDA. (2) Okinawa Soils, a more generalized map, on one sheet (1:1,000,000) prepared by the Military Geology Branch, USGS, for the Intelligence Division, Office of the Engineer, GHQ, FEC, 1951. This is a map of dominant soil types. The analysis here is based on this unclassified map. See also the discussion in Nuttonson, as cited, 37-48. The writer wishes to acknowledge the courtesy and assistance of Mr. Sherman Neuschel, Chief, Military Geology Section, FEC, and Mr. Carl Stensland, Soil Scientist, who participated in the survey of Okinawan soils. In Tokyo on my return, I profited from my discussions with Dr. Stensland, who also furnished me with grid computations for the village areas in which I was interested.

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Estimated Acreage on Okinawa Island

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311 2. The alluvial clays of the coastal flats and flood plains (Awase clay). These are also deep and fertile. Lack of water prevents extensive rice cultivation. About 60% of the area is in sweet potatoes and other dry land crops, another 30% in settled areas or military installations, and 10% in rice. These are olive, gray colored soils, of calcareous clay. They also have a low surface gradient. The water table is close to the surface, about two feet on the coasts, and near the surface in the interior valleys, except that in dry periods, it might be five feet below the surface or entirely absent. The soils are slowly permeable and slowly drained. They are almost absent from the north, common but scattered in the central and southern regions. About three-fourths of the area is found on coastal flats and one fourth on the bottoms of inland valleys. The greatest area is the coastal strip along Buckner Bay from the Katchin peninsula to Yonabaru, Bucknerville, most of the perimeter of the Chinen peninsula, a narrow strip in the Sukiran, Camp Kue coastal area, and another strip along the coast south of Naha. 16,200

3. The grayish brown loamy soils (Shioya loamy sand) with limestone grains, minor impurities and some organic matter, usually resting on coral sand. The soils, too porous for rice culture, have low fertility, and are nearly level on the raised beaches. They are widely scattered along the entire coast, but the individual patches are very small. Due to low fertility and the small area, the soils are not important. 311 2,650

4. The clay loams and the stony clays (Okinawa clay loams and Chinen stony clays). Both occur on limestone plains. These are fertile and well drained. "Both are very crumbly, or strongly granular; although clayey and plastic, they are porous, permeable, and of good tilth." Generally these soils are neutral with a tendency toward acidity when depth to limestone exceeds ten or fifteen feet. Seventy percent of this group is the Okinawan clay loam, with a top soil of a dark brown clay loam five to ten inches thick. Of the clay loams, totalling 30,500 acres, 22,400 have a surface gradient of 2-8%; 5200, 8-15% and 2900, 15-25%. 30,500

The stony clay (Chinen stony clays), "the shallow stony soil occupying 30% of the unit, consists of dark-brown to brown clay or clay loam with loose fragments and outcrops of the limestone bedrock." Stone occupies 10-30% of the surface of these soils. Over half of the 12,000 acres is gently sloping (2-8%), the remainder being steeper (8-15%) 12,000

Estimated Acreage on Okinawa Island

These soils on limestone plains are found chiefly in the central region, the extreme south, and along the northern coast of the Motobu peninsula. There are sizeable individual units throughout the island and on the offshore islands. These soils were found in the environs of all the villages studied.

5. The gently sloping Shuri clays. They are olive colored calcareous clays, slowly drained and moderately fertile. They are scattered in the central and southern regions. 9,300

6. The Upland Shuri Clays and rough broken land. The crumbly clay soils are "over bedrock of compact impervious clay." Sixty percent of the unit resembles the Shuri clays, but the soils are shallower and the slope is steeper. The steep areas are even shallower, and there are frequent outcrops of raw clay bedrock.

Sloping and hilly upland	18,200	
Steep escarpments	11,200	29,400

These soils dominate the landscape of the eastern part of the central region and much of the south. They are not found to any degree in the northern area. The gentler sloping parts are in dry land crops, but much is also idle land. The steep parts are in grass or in brush, the familiar genya land.

7. The Ishikawa loams. These are deeply drained acid soils of low fertility. The thin surface is of a pale brown friable loam. It is an area suited to forestry. Of the 42,780 acres in the unit, 4480 are moderately steep, 3400 hilly, and 34,900 steep. 42,780

8. The shallow and acid soils of the mountains and hilly upland. These are the soils of low fertility of the northern forested area. They are shallow light colored acid loams with a prevailing gradient of 50-100%. 119,000

9. Rough stony land of limestone mountains and steep slopes. These patches occur in narrow ribbons throughout the island, but are most conspicuous along the Motobu peninsula, and the central region. The finger like ridges of the extreme south are notable examples. 14,900

If these acreage estimates are summarized showing the approximate areas for different types of land use, the

311 magnitude of the land problem stands out clearly:

Type of Use	Acreage
Total	287,630
Rice Fields	10,420
Dry Land Crops	57,715
Town Sites, Military Uses, etc.	19,595
Shrub, Grasses, Stony Land, Escarpments	27,800
Forest	153,900
Not Broken Down a/	18,200

a/ Probably mostly cultivated land with some in town sites, some idle, some in military installations.

What stands out is the high percentage of land in forest, shrub, grasses, stony land and escarpments that has little promise for future utilization. These soils now probably enjoy their best utilization.

[178] With a growing population and more economic activity, it is likely that areas in man made installations and settlement will increase, not decrease, and that further land for these purposes will come, not from the stony or forested soils, but from the arable land.

The soil survey documents what is apparent to general observation that the soils suitable for rice, and having water for its successful growth, are a minor percentage of the total area. The chief foods, it is apparent, must continue to come from dry land crops and slope cultivation.

134 311 Even though agriculture is and will continue to be the basis of the islanders' economic life, the lack of suitability of the soils for this purpose is especially striking. Improvement of agriculture, introduction of better methods of farming, the increased use of fertilizers, while effective, could only be a palliative when the total arable land for over five hundred thousand people is in the magnitude of 86,000 acres, if we include all the 18,200 acres in the above table which are not broken down. Even if this figure is too low, the mere fact that over 180,000 of the 287,630 acres is in forest, or shrub, grass, or stony land, and of low fertility is sufficient indication of the land use problem. These facts are supported by farmers' own appraisals of the nature of the soils of their island.

161 133 311 The following table, even if inaccurate, certainly states the problem in its proper magnitude:

Table 3

Population of Okinawa Island, 1950	517,600

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Approximate area in square miles	454
Population density per square mile	1139
Assumed area in cultivation in square miles a/	134.4
Population density per square mile of arable land	3851

a/ See discussion above. The 134.4 square miles is an approximation derived by adding the areas in wet rice, dry land crops, and 18,200 acres which includes land in cultivation, in town sites, military installations, and in idle land, a total of 86,335. An arbitrary approximation of 80,000 acres (134.4 sq. miles) was then taken, very probably too high a figure. Nuttonson, op. cit., p. 12, gives the cultivated area as less than one-fourth of the total area, or 67,200 acres. One of course must distinguish between cultivated land and land that can be cultivated, but 80,000 acres still seems a reasonable approximation.

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If we look at the geography of Okinawa from the point of view of the total physical environment and not merely from the point of view of the amount of arable land available to support the people, we are forced to the conclusion that as a result of long settlement, a growing population and the destruction of the war, combined with periodic and inevitable property and crop damage from typhoons, that the environment is not suited for the comfort and well-being of large numbers of people. Intense fertilization will keep the good soils growing crops. Increase of trade and some industrialization may help as long as they do not lead to destructive exploitation of the forests, and some small help may come from the reclamation of unused or cut over land.

5

Conclusion

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Almost one hundred years ago, one of the observers on Commodore Perry's expedition wrote,

> "That the island has been peopled for many ages, is evidenced by the graded roads and deep cuts, the structure and manifest age of the bridges, the antiquity of the villages, the great amount of stone-work in the towns and in the fortresses--some old and dilapidated, some modern and in repair; but, above all, by the incalculable amount of labor done in grading the land for culture. That which is now so perfect, could only have been made so by degrees, like structures reared by the ant or bee."[8]

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[8] Hawks, Perry's Expedition, as cited, II, 36.

1

Introduction

In contemporary Okinawa, there are four distinct types of village 361
settlement. The first and the most common is the village cluster. Houses
are grouped in a central area, usually along or on both sides of a road,
surrounded by farm lands and rice fields. The second, the shoe-string
type, is less common. Here houses are lined along either side of a main
street. The third is a here-and-there type of settlement. This has been
called a yadori (Japanese) or yadui (Okinawan) village, translated as
plantation, but this is too exalted a word.[1] These villages may have
sub-settlements. Houses are scattered among intervening plots of culti-
vated land. In the fourth category are the modern improvisations: land
formerly in forest, grass or shrub which has been reclaimed and used for [311]
houses and nearby cultivation, or former agricultural land now taken up
for house sites, a result of increased population or of war time destruc-
tion of other parts of a village.

The basic type of Okinawan village is the cluster, a village small [351]
in area whose houses, close together, and on irregular winding lanes,
are separated from one another by stone or rock walls, or by boundaries [363]
of trees or shrubs. The front part of the house compound usually is cut
off from the road by a stone fence, running part way across, with the
opening to the road obstructed by a stationary barrier, sometimes of
stones, often of woven grasses.

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In the village of a bygone age, there were large open spaces like a 175
common on the outskirts "often appearing as glades in the forest." In
this area, rice was laid out to dry, horse racing and other sports took [526]
place, the village council met, goods were bartered, justice administered, [351]
and festivals celebrated.[2] When approached from a distance, the older
villages seemed literally buried in foliage. In the last century the
larger villages still had rest huts (cung-qua) for travellers, usually [485]
government officials to use from one overnight stop to another. The
older village also had a series of small buildings on stilts three to [343]
six feet long. These were granaries and food storehouses. Some houses
were also on stilts. Older accounts have stressed the concealment of [342]
the Okinawan village, its houses separated from one another, its lanes
lined or embowered with bamboo, with banana trees, or with arbors. To

[TEXT CONTINUES TOP OF P. 48--ANALYST]

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[1] Higa, Shunchō. Structure of the Ryukyuan rural community. The Japanese journal of ethnology, 15 (1950), 63-66. In Japanese with English summary, 151.

[2] The Luchu islands and their inhabitants, as cited, 457. See also Basil Hall, Account of a voyage of discovery to the west coast of Corea and the Great Loo-Choo island, 123, 124.

The village is one of a series of settlements in a long narrow valley, 361
on a limestone plain, bordered on the east by a steep ridge, up to 300 133
feet in elevation and running in a northwest and southeast direction,
which divides the valley from the sea. On these cliff like formations, [137]
large outcrops are covered with shrubs and miscanthus grass. Lanes and [491]
roads lead from the valley floor to the summits of these hills, where [824]
villagers collect their firewood and grass for roof thatch. On the rocky, [764]
steep slopes of this seaward ridge, above the line of cultivation, is the
tomb area. Precipitous and stony hills prevent cultivation, but occasionally a sharp tongue of land reaches far up the slope, its end protected
from the rains and wash by a short stone fence. [417]

Between Oushichan and Hanashiro village, there is a bridge over a 491
small stream, its upstream course obscured by its dispersion in the rice
fields. The dirt road, gradually ascending, cuts through the main rice 133
growing area of the village, on a gentle slope, reflected in the bench [243]
cultivation of the rice fields. Here and there are large rocks and
stony outcrops, with an occasional scrub pine, cycad, or a covering of [137]
miscanthus. Cultivation goes around these large stones.

The road, about one-fourth of a mile from the bridge, soon leads 361
into what looks like, from a distance, a densely wooded area. This is
the settlement.

With the exception of the rough stony land of the limestone mountains 134
and steep slopes, the soils of the area are the Okinawa clay loams and 133
the Chinen stony clays lying on the limestone plains. The farm and
village area takes up approximately 427 acres, of which 257 are in gently 311 ●
sloping Okinawa clay loams, a deep, well drained, neutral to slightly acid
and very fertile soil. Another five acres is of the same type but these
are in slopes, of a gradient ranging from 8-15%. There are 80 acres in
gently sloping Shuri clays, shallow, moderately fertile, an olive colored,
crumbly, calcareous clay; another 35 acres in the Awase clays, deep
fertile, crumbly, calcareous clay of olive-gray color, and 14 acres of
rough stony land.

The hillsides and the summits are free of densely growing trees 311
and shrubs, and the lowlands are given over to cultivation. There are
no groves of trees to protect the crops from typhoons. The trees and
the protection they give are confined to the village. This is typical
of many villages of southern Okinawa, where the hills and mountains have
few trees, and dense growths are associated with habitation.

Inside the village, winding lanes branch off the main dirt road. 361
The older houses are on the north side of the road. On the opposite side, 363
the houses, newer or rebuilt since the war, adjoin the cultivated area.
In the older section, the dense shrubbery, the tree lined lanes, broken [417]
occasionally by stone fences, wind through the village with footpaths
branching off, sometimes past an open field, a reminder of a failure to [487]
rebuild after the war. On the northern outskirts is the village office,
its gong in the yard, the open field, a playground for the children. [367]

361 The village is a group of houses, each with its own compound, and
351 these give it an inclosed look. There are few if any gardens or vegetabl
patches either in the compounds or within the village settlement.

363 The lanes resemble quiet winding country roads. The rock fences,
or the lines of trees or shrubbery often conceal the houses. There is a
appearance of loneliness in these lanes and roads, except at busy times
of the day when the children return from school. The lack of commercial
[482] activity, except for the women carrying rice on their heads to the mill
[462] and for the small village stores, contributes to this impression of quiet,
which one would expect from the routine of agriculture. At night, when
[354] the doors are drawn, and when the flickering and smoky oil lamps are lit,
the loneliness and quiet of the village is even more pronounced. The
[493] lanes and the roads are deserted, save for an occasional passing truck,
bicycle, or three wheeled cycle, and in one of the favorite words of all
[192] Okinawans, the place is sabishii.[6]

Since there is little activity in the village other than farming,
366 neighboring villages and distant towns supply the additional needs. At
368 nearby Gushichan village, there are the primary and junior high schools,
the post office, the township and agricultural association offices, a
barbershop, and some small stores. At Minatogawa, about one and one
half miles away, there is a public bath, and across the river from this
village, in Horikawa, an occasional play from the Okinawan stage, or
a movie. Buses run through the village twice a day and one can make
connections to Naha or Itoman, the two most likely places for buying
[494] or selling. Or one can take the three wheeled cycles which pass through
more frequently.

727 Physically, the village was much affected by the war. On June 11,
1945, the front line ran through the cultivated area between Hanashiro
362 and Gushichan villages. Hill 95, the scene of fierce fighting was in
the vicinity of Hanashiro.[7] One can still see an occasional tank track,
abandoned helmets and scattered fragments of war materials in the fields.
The village was affected by the war in ways which are now observable
indirectly in the makeshift houses, improvised shacks, the roofs of half
[355] tile and half thatch, the odd additions to the older buildings partly
destroyed, and the lack of drain pipes and water catchment tanks. Houses,
which to superficial appearance, have existed for generations, have
been rebuilt since the war with grass substituting for the tile roofs.
[311] War operations over the cultivated areas also resulted in some loss of
land. A long mound in the rice areas, with paths along its ridge, was
formerly a road built by the Americans in the final drive toward Mabuni.
Almost all the houses in the village were destroyed.

[6] This Japanese word suggests both loneliness and melancholy.

[7] Okinawa, the last battle, as cited, 437 (illustration), 434-42 on the struggle for Hill 95.

Since the war, the old narrow one lane roads have been broadened, 363
permitting heavier auto traffic. Land ownership has been undisturbed, 423
for it is not in an area in which the military has required land.
Since the war, the villagers have tried to return to their former way 511
of life, but this has been done with poorer houses and fewer possessions.

3

Minatogawa

Minatogawa, the second village studied, formerly was a shoe 361
string type of settlement. Houses, shops, drinking places were along [275]
the seawall road. This pattern is now altered as a result of the war.
Scattered areas have been relocated and houses built on lands formerly [311]
used for sweet potatoes. It is now an indeterminate type of village,
retaining some indications of its old settlement pattern along the main [244]
road, with additions of clusters of houses in the newly settled areas.

Like Hanashiro, this village is in Gushichan township, and located 361
on Highway 64. It is directly on the main historical road, previously 133
mentioned, which led from Naha to the Chinen peninsula. The road, along
which its houses are built, parallels for a distance the estuary of the [491]
small Minatogawa river. This narrow estuary, called Usaregawa, which
connects the river mouth with the Pacific Ocean, and the small river
itself (Yuhigawa) is a boundary between Gushichan and Tamagusuku town-
ships. On either side there are steep cliffs, the sites of the best [316]
known stone quarries of Okinawa.

The settlement and the adjoining lands have an area of about 256 621
acres. It is a mixed economy village with three distinct occupational 463
groups: fishermen, stonecutters, and farmers. There is a second village whose borders blend with those of Minatogawa. These two villages are now known officially as Minatogawa-ikku and Minatogawa-niku. The two terms can be awkwardly translated as Minatogawa first ward, and Minatogawa second ward. But popularly they retain their older names: Minatogawa for the fishing village, and Nagamo for the agricultural second ward. These two separate but adjoining villages were until 1925 a single village.

The division was the result of distinct differences in outlook and
occupation between the two sections. Minatogawa is a fishing village [226]
and has strong ties with Itoman, a town on the East China Sea shore
about 4 1/2 miles away. Nagamo is an agricultural community originally [241]
settled from Naha and Shuri. Stone-cutting operations spread over both [324]
areas. While the fishing village of Minatogawa was given the emphasis
in this study, it will be necessary occasionally to include Nagamo in [128]
the discussion.[8]

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[8] The writer did not realize until he lived here that two villages were involved, thinking that the two wards referred to a single administrative unit. By this time the work on Hanashiro had been well started, and time did not permit the intensive study of Nagamo. 114

133 Hanashiro and Oushichan villages to a broad semi-circular valley, the
361 Oushichan plain, with a gentle gradient sloping to the sea. Shortly
before the coast is reached there is a sharper drop, and it is in this
depression along the shore and the coastal strip that the fishing village
lies.

134 The Okinawan clay loams and the Chinen stony clays are also the
133 predominating soils of the area. There are about 85 acres of the gently
sloping clay loams, 155 acres of the gently sloping Chinen stony clays.
While moderately fertile and well drained, these soils are also shallow
and stony, with obvious defects for the pursuit of agriculture. There
are 10 acres of deep, fertile poorly drained, slightly acid alluvial
soils. These occur along the river and its estuary and in a small
former river mouth to the south. There are about six acres in rough
stony land.

731 The village has very little storm protection. There are no shelter
133 belts around it, nor are there many trees within. It is open to storms
417 and typhoons, and the water, lashed by the sea, is sufficient to break
and scatter the large stones of the seawall. At present, inside the
village there is none of the privacy typical of the agricultural villages
361 and their compounds. There are few trees, shrubs, or fences. In the
351 older part of the village, the houses are closely set together. Fishing
227 nets hang on the lines of the yard. In season, the yard is covered with
drying fish, fish fins, and fish backs. The yards and the shore are
dotted with men cleaning or repairing their boats.

The lack of natural beauty of the place is accentuated by the poor-
362 ness of the houses and the other buildings. Its atmosphere is unmistakably
512 different. The village is more commercial and more lively than the quiet
484 and concealed agricultural village. Life is not so much of a routine, for
much depends on the weather and the sea. The village has people who have
travelled widely. Some of its fishermen have been in the waters of Java,
of the South Seas, of the Andaman Islands, the Philippines, and Indo-
China.

438 The village's main commercial contacts are with the remaining
agricultural villages of the township from which it must obtain much of
● [311] its food, for the area is not suited to agriculture, nor is much land
available. For wider contacts, there are Itoman about 4 1/2 miles, and
Naha about 8 1/2 miles away. Buses go through the village twice a day.
499 The three wheeled cycles are irregular but come and go more often. Fish
368 is sold at Naha. The theatre for the travelling troupe of actors from
574 Naha and for movies is in Horikawa across the river. Many visits are
also made to Itoman to see relatives and friends.

The war was even more catastrophic for Minatogawa than for Hanashiro.
727 Before the war, Minatogawa was a thriving, prosperous and well built up
small town. About 70% of its buildings had a tile roof and 30% had
[361] thatch roofs. There were about 30 stores, sake shops and drinking places,
including a geisha house, along the road, serving the fishermen and the
stonecutters. Of the 430 buildings in the area, only three were left

standing. At one time, the Minatogawa beaches were seriously considered 727
for the initial landings in Okinawa, and later as a possible second landing.
After the campaign for the south had begun, Minatogawa became a
forward loading point.[10] The present village has been completely rebuilt, [362]
and the newer buildings, with few exceptions, are frail and undistinguished.
The war shows its effects, too, on the southern part of the
village where there is a barren acreage, formerly the site of an army [311] ●
camp, its top soil so shallow that the bulldozers in levelling it soon
reached the rock beneath.

Nearby Nagamo is a village of a different type. It is divided 727
into two distinct quarters, also a result of the war. The old part 361
formerly was to the north in the main stonecutting area, but following
the destruction, a new settlement was started in the farm land a few
hundred yards south. Cultivation is marginal on the shallow soil of
the sloping valley before it descends into the flat coastal area in [134]
which the fishing village is located.

Minatogawa, which means River Port, is a distinctive village 103
reminiscent of the famous fishing town of Itoman, though without its
size, beauty, or color.

4

Matsuda

Matsuda is a here-and-there type of village. The village area 361
including the community owned forest is over a square mile. The [423]
countryside is dotted with several small sub-settlements. Within each
sub-settlement, the houses also are scattered about and separated [311]
from one another by large trees, thick growths of shrubbery, grasses,
stone fences, and cultivated fields. [351]

The village is located in Ginoza township (Ginoza-son) on the 361
northeast side of the island. This township is in the northern
district (Kunigami, or Yambaru). The village is on Highway 13, which 103
winds along the northeast coast through Ishikawa, Kin, Kanna, and
Ginoza villages. [491]

Though near the sea, a typical site of a northern Okinawan village, 361
it is a settlement engaged in agriculture and forestry. Its name suggests [241]
its nature. Matsuda is a compound of the characters for pine [313]
tree, matsu, and rice field, ta, da. Though there is some fishing in
the sub-settlements along the Pacific shore, it is casual and a part 226
time occupation for farmers on the coast. The families exclusively 463

[text continues TOP of P. 55--Analyst]

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[10] The statistics on village destruction are taken from accounts of the villagers. They are estimates. For operations in this area, see Okinawa, the last battle, as cited, 68, 74, 426-27, 436, 439.

226 463 engaged in fishing are permanent or transient families originally from Itoman, a place name which comes up whenever fishing is mentioned anywhere in Okinawa. Agriculture and the care and utilization of the community forest make up the significant economic activities of the village.

162 Matsuda had a population of 1370 individuals (604 male, 766 female) as of November 30, 1951. There were, at this time, 243 households, an average of 5.6 persons per household. The village is said by local 361 residents and antiquarians to be about 600 years old. If the age is correct, it must be one of the older settlements in northern Okinawa. Before the war, this village was known as Kochiya.

173 Matsuda also has its lore regarding shipwrecks and foreigners. There are old men who believe Perry's party came to the village and that they left carvings on the top of a picturesque rock in the Burushii district along the coast, a not unbelievable story since the explorers certainly were not far from here.

Near the seashore, but in a very remote area, there is a natural bridge, concealed by large trees. Roots of the banyan grow through the [137] thirty or forty foot drop from the top of the bridge until they find root in the soil below. On a ledge under this bridge, there are two [764] old and open boxes which were used to collect the skulls and bones of unknown persons. Locally it is believed that they are the remains of shipwrecked sailors, possibly Hollanders. There are still 25 or 30 skulls there, and many of the bones are scattered on the ground. The place is seldom visited.

361 133 The village rests on low rolling hills. The combination of the hills, the depressions, the caves and the sinks give the topography an uneven almost rugged character. There are few flat places and these are seldom wide. They are the narrow meadows or valleys between the hills. 241 The hilly nature of the surroundings determines to a large extent the manner of cultivation, and historically probably has had much to do with 311 the shapes of the individual parcels themselves. One does not see in this area the plains or small valleys with rice cultivation that is observed in Haneji township near Nago or around the island of U in Tamagusuku township, or even in the Hanashiro area of Gushichan township. In these communities, the normal pattern of cultivation is that the rice is on the lowlands, with the slopes and upland areas devoted to sugar cane, the sweet potato, or other crops, or left to native grasses. Here in the hundreds of small hills, all of these may be observed in close proximity, hard work and minute tillage comprising with the topography.

361 311 The village is subdivided into several distinct areas: (1) the main part of the village where most of the houses, the village office, the small stores, the rice mill, the sawmill, the power plant, and the barbershop are located, (2) a reclaimed area known locally as the kaikon, newly settled and with a different type of land use due to the poorness of the land and to the fact that it is a deforested area, (3) a district near the sea coast and along the sea with scattered settlements, isolated houses, and some cultivation, and (4) the forest lands, which in the

361 traditional attitudes that the north was a culturally rude and physically
311 inhospitable place. The highway which now goes through the center of the
main part of the village is a good, hard surfaced, dirt road, widened
since the war. A lively traffic of trucks and buses and the three wheele
491 cycles contrasts with the narrow pre-war roads, traces and abandoned
sections of which can still be seen. The frequent buses supply transpor-
494 tation to the larger cities and towns of the island: to Nago across the
island and slightly to the north, to Ishikawa on the south, and to distant
Naha, about 31 miles away.

927 Matsuda, unlike the southern villages, was not destroyed by the war.
There were some air raids, some bombing out of the houses, but nothing
like the destruction in the main areas of conflict. Early in the Okinawa
campaign, the north was cut off and isolated and the struggle for the
362 island took place in central and southern Okinawa. As a consequence,
342 many of the old houses, sturdily built with tile roofs, have been preserved.
Numerous refugees from the south gathered in this area during and after
166 the campaign. In nearby Ginoza (Jinuza) village, slightly over a mile
to the southwest, also on Highway 13, the Americans operated a hospital
943 for Okinawan refugees. It is still in use. This relative lack of war
destruction in the northern villages has, to a degree, reversed the roles
184 of the north and the south. The opening up of the north, its prosperity,
the survival of many of its old homes, give the impression of comfort
and well being conspicuously lacking in most of the makeshift villages
of the south.

The descriptions of these three villages perhaps make clear the
diversity that can be expected among Okinawan settlements. Hanashiro,
the small village cluster, with adjoining rice fields on the valley floor,
its other crops on the terraced slopes, is the most typical. Minatogawa,
the fishing village in an impoverished countryside of stony or shallow soil
is dependent on the seas and its catch for its livelihood and the where-
withal to buy the foods which cannot be grown in sufficient abundance.
Matsuda, a collection of small settlements, scattered here and there from
the coast inland, with its large preserve of community forest, is an
example of agriculture in a forest setting, and of the use of the forest
in daily living. This by no means exhausts the diversity. The village of
136 Oku to the north, with its tea, its rice, its fences for wild boar pro-
tection, its cycads planted on the hillsides to prevent erosion, is still
242 another example. But our task here is not to catalogue all diversity, but
to indicate that it exists and to a much greater degree than would appear
to superficial observation.

602 of contemporary relationships. The family system does not mean only family life, or a set of obligations, or a family. It is all of these, and, in addition, a historical continuity. It is an institution in which the past is constantly intruding on the present and in which the present is a combination of acts to secure one's own livelihood and well-being as well as to perpetuate the family in the future. A simple illustration will make this clear. [769] One of the obligations of living members of a family is to observe the death anniversaries of close relatives. The last, the most important, and the most sumptuous of these observances occurs on the 33d year after the death of the relative who is mourned. Thus a grandson, most likely the first son of a first son, may end this period of memorial observances for a grandfather whom he may never have seen. There is a constant intrusion of obligations coming fro the past. These, often onerous and expensive, are honored in a positiv manner.

In the present, conscious plans are made for the continuance of the family. These are achieved through three closely inter-related devices: [591] [428] the succession of the first son to his father's house and, on his marriag taking up residence at the father's home, the system of inheritance which favors the first son, and the establishment of branch households for othe sons, awarding them, if the family's wealth permits, a house site and fie for cultivation.

In this way, the continuance of the main line and collateral branche of the family is provided for. If we pursue the illustration of inheritance a little further, we can think of the division of the land as an [428] [311] expression of the family system applied to the use and to the sharing of the available natural resources. The system of agriculture, the scattered ownership of small holdings, the attempts at land conservation and reclamation are best understood as reflections of duties and obligations to the present and future generations in the family system. If they are not seen in this way, they may appear to be isolated practices best discussed as techniques or as aspects of law and custom.

Not only in family observances but in public holidays as well, the [527] [769] subtle influences of the family system can be observed. Public holidays and festivals are centered on two main themes, sometimes both together: thanksgiving for good crops and reverence for those who have passed away. The holiday of O-Bon in the seventh lunar month, in which the departed dead are invited to return for a visit to the homes of their living descendants and the celebrations at lunar New Year are good examples of this.

[582] 621 In village life, the family system is strengthened by the high incidence of intermarriage among local kinship groups. A general lack of mobility in the villages studied has also led to the increase of immediate relatives living in the same village. This lends to community, and even to local government some of the characteristics of a wider family life. The establishment of branch families in the village of their parent

593 in a military installation which keeps them away from their homes, they
remain there, helping in the fields, or go out on the fishing boats, as
[582] the case may be. If a son other than the first remains in the family
after the age of marriage, it is generally for some physical or mental
disability. Under the normal operation of the family system, there is
591 no time in a person's life in which he is not part of some family unit
and living in the same house with his parents, an elder brother, or
with a wife and his children, or with his grandchildren.

727 The war enforced many exceptions to this normal life cycle, as the
593 discussion of the previous table brought out: conscription and military
service, deaths in battle or as a consequence of the campaign, widowhood and the orphaning of children. In the villages studied, the postwar situation was not disrupting family life further by the movement of
younger unattached men to Naha or the larger towns, or by their separati
from daily life while doing work for military camps. At least it was not
sufficiently frequent to result in a deterioration of normal family life.
591 In these villages branch families were established for the most part
in the village of the parent family. There are two reasons for this:
first, the desire to remain near the parents and siblings, and second,
[423] that the property which the father, or elder brother, has at his disposal
is normally real property and land holdings in the village. Cash, which
agricultural or fishing family might have at its disposal, would usually
[435] be insufficient at present prices for a second or succeeding son to be
given money to purchase land and a house site elsewhere. Occasionally a
[425] father sells land in the village to provide his son with money to purchas
a house site and fields elsewhere, but this is not usual.

The mechanics of establishing a branch household may be illustrated
from practices observed in each of the villages, though the procedure is
essentially the same.

Hanashiro is a settlement in the center of a cultivated area of dry
[361] field farming and rice paddies. The cultivated area begins on the outer
rim of the village. The father, or the elder brother, gives a field
(hatake in Japanese) to the son, or younger brother, if it is suitable
for a house site. If the land owned is too far away--there are no
[425] isolated homesteads--an effort is made to exchange with a neighbor, fri
or relative, the far off property for a parcel closer in. If this is
not possible, the remote piece is sold and the proceeds used to purchase
a suitable plot in the residential area. If the family is too poor to
[426] give money or land, an attempt may be made to borrow the money for purchase. If none of these arrangements is possible, the son may simply
start out on his own, or less commonly, may live with his wife in the
home of his parents, or delay his marriage. But it is uncommon for a
second or succeeding son and his wife and children to live in the house
of the parents or of the elder brother.

311 In this way, the residential area gradually replaces the cultivated
areas which surround it. One consequence of the establishment of branch
591 families in agricultural villages is that it gradually decreases the

arable land available for cultivation. House sites cannot be set up 311
on rocky or mountain land away from the village. Whether on the island 591
as a whole the increase in population, the repatriation and the
stoppage of large scale emigration will in the future seriously diminish
the amount of land available for agricultural uses is an interesting
question, but there certainly is a direct relationship between population [161]
growth and land taken up with house sites.[5] Not only will a growing
population enforce greater demands on the land, but it will inevitably
cut down on the amount.

Among the fishermen of Minatogawa, there is a little more fluidity 591
in the establishment of branch families. There are seldom enough lands
to subdivide, and only about 50% of the fishermen own land in addition 423
to their house site. The branch household is established according to
the son's taste, and the father may give money if he can afford it so
the son can set himself up in Itoman, Naha, or elsewhere. The usual [311]
procedure here is to give land in a former agricultural area of the
village, land which was developed in the southern part of the village as
a result of the destruction of the war in other parts. Here formerly
arable land was taken over directly for residential use.

In Matsuda, it is possible to use newly developed areas. This 591
community, unlike the other two, is a series of sub-settlements. In 361
two of these, branch families have settled, one near the seashore, and
the other on reclaimed forest land. In both of these areas, the pattern
of settlement is different; the clusters of houses give way to the
scattered houses, some standing out alone on the top of a knoll or hill,
some near the forested slopes of the hillside. In these areas, there is
an atmosphere of pioneer settlement. As in Hanashiro, the buying of near
land and the selling of far off land and exchange of land are practiced. [425]
Since the reclaimed area is considered to be less productive and less
desirable, the poorer families are able to purchase land here for their
second sons.

5

The Pivotal Importance of the First Son

The key person in the family system is the first son. He normally 593
succeeds to the house at the death or retirement of his father. The 596
father may not legally retire before 60. In rare cases--none were encoun-

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[5] In general, house and village sites are on arable land, but the quality of this land naturally varies from place to place. See any of the 11 sheets of the Okinawan Soils Map and the discussion in the Remarks column of the legend with reference to the types of soils on which village sites are found.

428 form of fields or of house sites so they may establish branch families.

(3) The inheritance and the division of land cannot be considered abstractly. It is in this area that custom and individual desire have the greatest play. A village farmer does not simply have land. Normall he has a series of scattered land holdings, varying in area, type, and productivity. A farmer does not have a compact area of rice or sweet potato land which can be easily subdivided, but a few small rice plots, of varying grade, some fields for growing sugar cane, sweet potatoes, or vegetables--also of varying grades--and parcels of genya land from which he gets firewood, grass for his thatched roof, or feed for his animals. When speaking of inheritance and division of land, one should think in concrete terms of the various types and grades of land subject to disposition. Under these circumstances, it is meaningless to say that an Okinawan farmer has an average of so many acres of land unless we are prepared also to add its category of productivity or use. The mechanics of land division are therefore directly related to land use and to the fragmentation of land. [311]

(4) There is a tendency to give the second and other sons the scattered holdings and to subdivide these parcels if they are large enough, preserving the land closer to the house site or parcels that adjoin one another for the head of the house.

(5) Generally speaking, the first son does not subdivide a specific parcel of land with his brothers. He will take a whole piece as his own, leaving other parcels to be subdivided among his brothers.

425 (6) Inherited land can be sold, but the customarily approved reaso for doing so are few. This applies with special force to the holdings of the first son. Property can be disposed of without the sale being considered dishonorable when it is associated with a change of occupation involving moving to another place, or with acute economic distress. A man who decides to give up farming and to move his family to the city may sell his land; a man who is physically unable to work his land and has no children of sufficient age to help him may sell his land and set up a village store; a widow with minor children, already in debt, may sell her property. Sellers consult with the members of the extended family who live in the same or in nearby villages and only sell with the consent and advice of these relatives. This is conspicuously true of widows.

594- (7) If the first son dies without issue, he is replaced by the second son who becomes head of a house. If the first son is in a foreig country, the second son at home lives in the house, but this does not endanger the succession rights of the first son abroad. If the first so returns, he succeeds to his house, and the second or other sons living in the house will be obliged to set up a branch family. Occasionally, a second son remains in the main family, even though he cannot succeed to the house; this is during the minority of a deceased elder brother's first son who will take over the house when he is of age.

(8) Inheritance practices tend toward a slow but continuous fragmentation of land due to the need of establishing branch households. This tendency toward fragmentation is seldom overcome by reversing the process in favor of some form of land consolidation. The major obstacles to consolidation will be dealt with in the next chapter. Fragmentation is more likely to occur in the holdings of the more well-to-do who have property to divide. Among the very poor, whose holdings are small and scattered, there is an enforced primogeniture. It is not possible to divide land indefinitely. The smaller a piece of land, the more likely it will be surrounded by land owned by others, and these isolated islands are difficult either to sell or trade. 428 423 [565]

(9) Among the fishermen of Minatogawa, practices applied to real, personal, and movable property, are similar to those of the agricultural villages (nōson). Here the influence of the family system is more on the disposition of personal than of real property, but the effects, if not the rewards, are similar. If a fisherman has dry crop fields--there is no rice land--the elder son receives all, or most of the land. All informants stressed the weight of the individual desire of the father, whose division of property is influenced by the spirit, sobriety, and dependability of his sons. Here there is also the same social disapproval of selling inherited land. The fishermen attempt to supply second sons with small boats, nets, hooks, and other gear, just as the farmer attempts to give land, domestic animals, and agricultural tools. With the very poor, second and third sons may have to be content with nothing or with a few articles of clothing. Among those fishermen who have land, the principle is established that the first son gets the greater part, if not all, of the real property. 428 423 422 [425]

3

Mechanics of Land Division

Ownership is scattered; individuals own different types of land in varying proportions and in varying grades within types. Plots of land are small in area. Rice plots are normally the smallest, followed in general in ascending order by dry crop fields, and the wild land (genya). It is from such conditions as these that the difficulties in fairness of division arise. 423 311

The following illustrations show the manner in which division is usually carried out. Let us for simplicity first assume four parcels of land:

#1, a house site
#2, a parcel of 700 tsubo third grade dry crop land (hatake)
#3, 500 tsubo of grade one dry crop land, inconvenient and
far away from the home, and
#4, 1000 tsubo of grade two hatake.

428 A possible distribution is shown in the following diagram. (Fig. 1). In this arrangement, the first son gets the house site and parcel #4. The second son gets 600 tsubo of the 700 tsubo in parcel #2. The third son gets 600 tsubo in two different places, 100 from parcel #2 and all of parcel #3.

423
311 Now let us take a more complicated situation, one that more closely parallels an actual division. The land of the head of the house is distributed in the following plots:

#1 19 tsubo of first grade rice land. This is a minute holding, roughly equivalent to a rectangle 20' x 34'. The fact that it is first class paddy and very small indicates that it is a rice seed bed (naidoko).

#2, 3, 4 are parcels of rice land, second grade, of 150 tsubo each.

#5 A plot of 3d grade rice land, 300 tsubo.

#6 A plot of 150 tsubo of dry farm land (hatake). This is first grade, but far from the house and in a different area from other family holdings.

#7 One plot of 2d grade dry farm land, 350 tsubo of medium quality but close in.

#8 A plot of 500 tsubo of dry farm land, 4th grade, hence rather poor, but close to the house.

#9 A plot of 400 tsubo dry farm land, 5th grade and barely usable for cultivation, almost like genya land.

428
423 The possible distribution is shown in Fig. 2. In this arrangement, the first son gets the house site, the seed bed (#1) and the three nearby rice fields (#2,3,4), the 500 tsubo of 4th grade dry crop land (#8), and the 350 tsubo of grade 2 dry crop land (#7). The second son receives 150 tsubo of rice land through the subdivision of plot #5, 150 tsubo of first grade dry crop land (#6), and one-half of the 400 tsubo of fifth grade dry crop land (#9). The third son gets the second half of the rice plot (#5), and the second half of the dry crop land (#9).

Summarized, the totals are:

	Total Tsubo*	Rice (Ta)	Dry Crop Land (Hatak)
Total	2169	769	1400
First Son	1319	469	850
Second Son	500	150	350
Third Son	350	150	200

[809]

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* A tsubo is about four square yards

423
428
311

MECHANICS OF LAND DIVISION

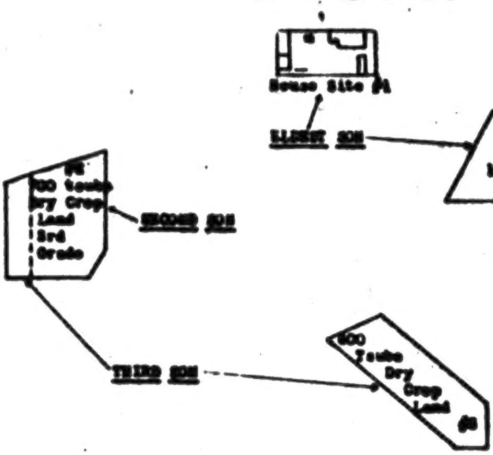
House Site #1
ELDEST SON
#4 Dry crop land
Grade 2
1000 tsubo
#2
500 tsubo
Dry Crop
Land
3rd
Grade
SECOND SON
THIRD SON
600
Tsubo
Dry
Crop
Land
#3

Fig. 1

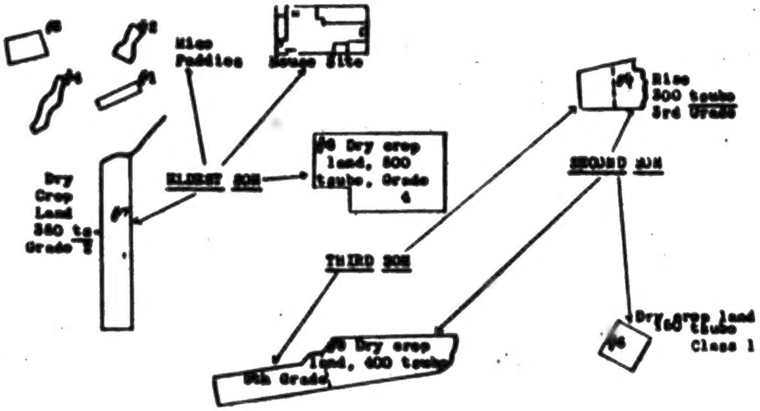
#5
#2
Rice
Paddies
House Site
#4
#1
Dry
Crop
Land
360 ts
Grade 3
#7
ELDEST SON
#6 Dry crop
land, 800
tsubo, Grade
4
#9
Rice
300 tsubo
3rd Grade
SECOND SON
THIRD SON
Dry crop land
150 tsubo
Class 1
#6
#8 Dry crop
land, 400 tsubo
5th Grade

Fig. 2

423 134 [824] In Hanashiro, the *genya* grass and shrub are essential as a substitute for firewood. In Matsuda with large areas of community owned forest, this *genya* is not so important to the individual family.

428 311 In considering the inheritance of land, it is essential to understand that a family needs different types of land. Not everyone has rice paddies, but parcels of dry crop land and *genya* in the south are necessary to existence.

428 593 If the practices of these three villages are indicative of the division of family holdings in general, the first son obtains between 50% and 60% of the land in addition to the house site. The remainder is divided, often equally, among the other sons. In the poorer families, if the sons are widely spaced, there may be enough left over for the second son, but when the third son reaches marriageable age, there may be nothing for him. Instances of this type were observed in the village. One young farmer of Minatogawa, a third son, said he received nothing, and set out by himself, first through wages, and then through small purchases to acquire his present modest land holdings.

This discussion may suggest a greater rigidity in the system of inheritance than is actually the case. It may give the impression of a series of families headed by the first son with most of the property and with younger sons and their branch families struggling along on what land can be spared for them. There has been, for historical reasons, more fluidity than this. The large number of heads of families who themselves are not first sons indicates that many second to fifth sons as well as daughters ultimately come into control of a family estate.

There have been four main reasons for this. (1) Emigration of first sons before they became of age. They left to earn a living in foreign countries to support their parents in the villages, became established and postponed to an indefinite future their return to Okinawa. Since the end of the war, according to relatives who are living in the village, many of these have no intention of ever returning except to visit. (2) Deaths of first sons without issue, and the succession of other sons or daughters. (3) Heavy war losses, especially of males. Some of these naturally were first sons, opening the way for the succession of young widows or second sons in the case of the unmarried first sons. (4) Deaths from catastrophes like typhoons, and in the case of Minatogawa, the losses of fishermen at sea.

428 602 182 Inheritance practices with private ownership of land follow logically from the family system. They are a means of providing the economic base by saving the estate for future generations, at the same time providing where possible for sons not in the direct line of succession. Inheritance is a connecting link between the family system and land use and land tenure. Present land use and land tenure are an interesting example of the modifications that a system of social organization, the family system, has made on the natural environment.

175 423 592 Under this old system, when a branch family was established upon the marriage of a son other than the first, his share was made available to him, although it is not clear whether he received this as a legal right, or whether, at each redistribution the father received the branch family share, later passing it on for the use of the son. In any case, provision under the old system was made for branch families in the redistribution just as in contemporary Okinawa this land is supplied, when possible, out of the private holdings of the father. The old and the new illustrate the operation of the family system under two types of land tenure.

175 423 311 Both in the Gushichan area and in Matsuda, there was agreement that the system applied only to rice lands and to dry crop land. House sites were not included in the biennial, quadrennial, or decennial redistribution. Neither were the parcels of genya land which were reserved for tomb areas (bochi, or haka). The forest lands (sanrin) or the genya lands were also communally owned. The reclamation or much of genya land in Okinawa for agricultural uses seems to be a late development, probably a direct consequence of the increase of the island's population. Fifty years ago the island of Okinawa was more heavily forested than it is now. This applies even to the south, if the statements of old people resident in the area can be accepted. Both in the northern and southern communities, pine stands in the forest and in the genya land were publicly owned, and there was a system of tree allotment. Trees, in the publicly owned areas, could be cut according to the number of [313] shares of land one had. Then in September and October of each year, each family replanted a number of trees equivalent to the number it had taken.

In these redistributions, apparently the land was not allotted to individual families directly, but first allotted to family groups [577] (kumi) and then in turn to the individual families. There were special allotment groups (jiwari-gumi). It is not clear whether this initial distribution to groups and then to individual families was universal in Okinawa, as this information comes only from Gushichan township.

This system of community ownership, with periodic allotment of rice and dry crop land, naturally called for a system of land classification. Excellent land was rare; good land was not plentiful, poor land was most abundant. The topography was rough and all good land was not in the same

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1 (continued from previous page) intervals, the amount in proportion to the number of family members and their work and tax-paying capacities. It was called ji-wari (land-division). Peasants had no right to possess land, but only the right to cultivate, and taxes were imposed upon a village as a whole, not upon individuals." Higa, Shunchō. Structure of the Ryukyuan rural community. The Japanese journal of ethnology, 15 (1950), No. 2, 63-66. English summary (from which this is taken), p. 151.

place. Then, as now, paddy and dry crop land might lie together, depending upon local factors. In the periodic redistribution, each 175
family received shares of each in non-contiguous fragmented parcels. 423
In the nature of things, they received small shares of the excellent, 311
moderate shares of the good, and large holdings in poor land.

The old classification of lands was simple and did not go beyond 175
three general divisions of good, fair, and poor. Apparently the Japanese 311
after 1879 introduced more refinements and increased the number of
classifications to six. Land classification, then as now, was empirical. [177]
It was based on observation, local knowledge of present and past yields,
and known dangers to the land. It was not based on scientific knowledge [242]
of the soils, nor is it today.

Several dangers to land and crops were considered: (1) the danger 175
of the wild boar (inoshishi). These reddish brown wild boars have dis- 241
appeared from large parts of Okinawa, though occasionally one is seen in [136]
the northern forest. The boars destroyed crops by night feeding. Rem-
nants of old fences can still be seen in the area around Matsuda. In [417]
Oku, in the extreme north, fences are still used and many can be seen
along the hillsides. (2) Dangers from floods and salt water spray.
Local flooding is common and often confined to a narrow area. Salt
water spray and salt water in the air, especially in typhoon times, are [731]
still menaces to crops. The danger from typhoons did not enter directly
into the determination of land classification because the area of destruction was so wide that it was not a factor distinguishing one plot from another. (One can however observe areas of differential damage in a village as an aftermath of typhoons).

This old land allotment system is now forgotten except in a few 178
isolated areas where its main features are still apparently preserved. 423
The best known of these is Kudaka Island off the southeastern shore of
Okinawa. If the system has disappeared, except for a few isolated [189]
survivals, its influence remains to the present: it determined the
pattern of land use still in effect today, the pattern of small, discontinuous parcels, and set the precedents for the mechanics of land
classification. The basic classifications such as rice land, dry crop
land, community forest were Japanese and are of great age. The old [177]
land allotment system is also considered to be of great antiquity.[2]

[2] It was a matter of considerable disappointment that I was unable to spend two or three weeks on Kudaka to study the land system there. Neither has time permitted an investigation (of great inherent interest) of the historical antecedants of the old Okinawan system. Land classification, such as we will be discussing in the next chapter, is very old in Japanese culture. The old Okinawan system bears some resemblances to the "mouth-share-land" (ku-bu-den) system of old Japan which appears in the Taihō code (702 A.D.). This was a system of distribution of communally owned land, but I have not been able to determine whether the distribution was periodic. See Wigmore, J. H. and Simmons, D. B. Notes on land tenure and local institutions in old Japan. Transactions of the Asiatic Society of Japan, 19 (1891), 77 on land classification, (continued on next page)

Goldschmidt then remarks that the peasant in the last years of his possession thought only of the parcel to come in the next allotment and did nothing for his land, and that in consequence its productivity fell. There was private ownership at that time only of newly reclaimed land or land filled in along the seashore, and this land went to the person who had done the work. The Japanese, when they abolished the system, divided land among families by number of members and since this time large holdings have not been created. Goldschmidt adds that "the land still suffers now from the consequences of this old system."[4]

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To discover precisely the nature of the influences of the old system cannot be done with accuracy because of the destruction of local records, the vagueness of recollection among the old and of the inability to reconstruct old boundaries. What follows therefore is partly speculative, but nevertheless useful in suggesting the reasons for the present shapes and areas of individual land parcels. One of the striking aspects of the land maps of these areas is the odd and irregular shapes of land holdings. This is not true of all Okinawa. In some areas, plots on the hillsides are symmetrical, often rectangular or square. In the areas studied, there are plots of this sort, but also many that have very irregular shapes.

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It is possible that after the abolition of the old system, some areas in the island were resurveyed, while others were not. Such surveys could have approximated the old areas but created a more regular rectangular pattern. In Hanashiro resurveying apparently was not done. The historical reasons for the present boundaries are not known because of decades of cultivation and because the land has not always been used for the same purposes. One of the large rice growing areas in Hanashiro is a recent development. The changes from paddy to dry crop land, or the reverse, seem to have followed the fluctuations in sugar and rice prices. It was quite probable that formerly the land was less level, that it was more heavily forested, and that odd shapes were due to the cultivated areas winding around large outcrops, patches of stony land, clumps of trees, uncultivated slopes which have now been reclaimed, leveled and cultivated.

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Conditions like this are a commonplace in Okinawa today. Some of these boundaries also may be following the lines of old streams. Rivers, or more properly creeks, are not numerous in Okinawa and their presence is often hidden: a stream rising in a nearby mountain and ultimately going to the sea eight or ten miles away may be lost in a wide paddy area and trickle off again in its stream bed after several hundred feet of dispersion in the paddies. The boundaries may also

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[4] Goldschmidt, Richard. Neu-Japan. Berlin, 1927, 131. (My translation). The same criticism appears of the system in the middle east. See footnote 2 above.

179 423 have been affected by roads and trails which have now disappeared.

Old residents[5] of Matsuda and neighboring villages were able to
[115] furnish more specific clues regarding the old system and its relation
to other phases of village life. These old people estimated the
population of Matsuda at the close of the old system at about 360
[161] persons, compared with the present population of 1368. The system
operated under much less acute population pressure than exists today.
Deaths, especially from malaria, and a high infant mortality kept
[165] the population down, although introduced Japanese hygienic measures
helped.

Under the old system in Matsuda, there was a continual clearing
[311] of land, mostly around the settlement. There seems little doubt
that land reclamation and clearing has been going on slowly from the
earliest historical times in Okinawa. The land cleared remained
under village ownership, but the persons who cleared the property
were allowed to hold it for use without giving it up for periodic redistribution. Technical ownership remained with the village.[6] Fences
and stone barriers were erected as a protection against the wild boars.
But the large scale reclamation and the private ownership of genya
land seems to have occurred after the close of the old system.

The dividion of lands at the beginning of the new system has
set the boundary pattern of many plots. In Matsuda there were instances of land which has retained the same boundaries that it had
under the old system. There was general agreement among the old
that the form, boundaries, and areas of land plots have changed
very little since the times of the jiwari-seido. This would be par-
[928] ticularly true in the case of property which had passed down through
the first son. Changes came from the establishment of branch families,
[925] and sales and purchases. In these areas, however, buying and selling
have been infrequent.

175 423 [171] The history of land tenure in Okinawa, therefore, is different from that of Japan with its long history of tenancy, whose accumulated problems finally led to the land reform of 1946 during the Allied occupation. The present system of land tenure in Okinawa is a little over 50 years old.

178 423 311 The chief influences of the old system were to set in a form recognizable to the present, the pattern of land holding, to establish land classification, and apply it on a very localized basis.

[115] [5] I am indebted here to Shinzato Zensuke of the village of Sokei (Ginoza-son), and to Oshiro-san of Matsuda village (Ginoza-son) both over 70 years of age for their recollections of the history of the system in Matsuda.

[114] [6] This differs from Goldschmidt's account, cited above, in that in this case the land became a usufruct, in the other actual ownership.

178 423 311 [217] Every parcel of land with its grade and type is mapped, a thoroughness in land classification which has not yet been approached in the United States. While the mapping is recent, the information was always available in the village records. Village owned lands are also a survival of this system, especially the forests in the north. Community owned property is much more modest in area in the south and confined to small parcels of forest or pre-war forest, school and public building sites, community ponds, and the like.

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Present Land Tenure and Land Classification

423 [888] The present method of land holding based on Japanese law went into effect at the end of the old land allotment system. The head of the family registered all lands, previously held as shares, in his own name. Apparently in the last distribution before the abandonment of the old system, men and women over 52 years of age received their property for life with the right to pass it on to their children. At the beginning of the new system, also, the wild land was still publicly held, but further clearing and reclamation got under way, and the *genya* land also began to be divided up and became part of private holdings about ten years after the new land law went into effect.

423 427 The new system of private ownership of land introduced buying and selling (*baibai*), tenancy (*kosaku*), and land speculation. There had been some tenancy under the old system apparently however it was on a village basis with one community renting from another. There has therefore been insufficient time to develop in Okinawa the widespread abuses associated with the Japanese land tenure system prior to the land reform of 1946.[7]

In all the villages studied, individual ownership is the rule with some informal tenancy. Now an owner is not paid for the use of his land, the result of a Civil Administration measure to encourage maximum food production. Tenancy, as it was observed in the villages was usually an informal lending of the land: the use by a friend, relative, or neighbor of an unused plot.

178 423 311 428 The present system of land use and land tenure is a result of practices and customs developed under the old allotment system, combined with the introduced Japanese system of inheritance. The family system plus these two influences have brought about the modern customs of land inheritance, the distinctions in types of land, and the fragmentation and lack of contiguity in holdings.

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[7] Based on conversations with villagers in Matsuda. Uyehara, Yukuo made the same point in accounting for the low percentage of tenancy and the high percentage of independent farmers in Okinawa-ken, Ryukyu Islands, Japan. Economic Geography 9 (1933), 395-405. Reference on 399. [115]

311 Land appraisal made by people with long experience with the
[242] capabilities of their soils under traditional methods of farming,
fertilization, and land reclamation is very old in the culture.
This in itself is a very significant fact about the culture aside
from the obvious technical utility of a land classification system.
[556] Land classification is important as a tangible indication of wealth
as appraised by representatives of the village. This classification
[651] is the basis of taxation of land. A grade two rice paddy pays a
lower tax than a grade one. The system of land classification also
[433] provides a basis for estimating probable yields.

Township officials are responsible for land classification on
[632] a township basis, but each village does its own. In Gushichan township
(Hanashiro and Minatogawa) the elected mayor and his appointed
subordinates and local farmers who know the land well have set up
the system based on classes and grades of land. In Ginoza-son, the
mayor performs a similar function. Since each village has its land
classification, a table of correspondences makes possible the comparison
of equivalent grades. A composite system for the township
can then be made. Grade three rice land in Matsuda, for example,
may be equivalent to grade two rice land in Ginoza village. By
listing all these together, a village wide classification is made.

The main classifications (tōkyū) of land found in all communities
are: (1) Rice lands, (ta, tambo), (2) dry crop land (hatake). It is
very difficult to translate the word hatake. So far the expression
dry crop land has been used. This land may be contrasted with the
wet rice fields; it is dry farming land, usually on rolling slopes or
upland. It is land used for cultivation of domestic plants except
rice and one or two other minor crops. Rice and dry crop land are
the two main classes. (3) Genya land. This word is also difficult
to translate. It is variously rendered as wild or waste land, but
it is neither wild nor wasteland in an economic sense. It is best
described negatively as land not suited for cultivation. Despite its
low value, it is important land for its production of grass, reeds,
firewood and plant shoots for domestic animals. It is vital in land
[185] conservation. The genya land, sometimes on steep or gentle mountain
slopes, sometimes cropping out in the midst of cultivated fields or
rice paddies, with its dense growth of grass, its occasional pine
tree or cycad effectively binds the soil and prevents disastrous
run off and flash floods. Around the village of Hanashiro, genya
land is rocky and most of its vegetation consists of grass with some
shrubs. Before the war, this genya land had more pine and cycads
than at present, and the disappearance of the cycad and pine furnished
greater opportunity for the omnipresent miscanthus, though there are
occasional regrowths of the pine. In Matsuda, the genya land often
is indistinguishable from the forest. But the trees are less dense
and the privately owned genya is interspersed with the small cultivated
paddies and fields. (4) House sites (yashiki, takuchi). There are
usually two classes: the first class site is convenient and on a main
road or lane; the second class is inconvenient, a rear house, or one

off a main road or village lane. (5) Forest lands (*sanrin*). This is an important classification in Matsuda, but of minor significance in Hanashiro and Minatogawa. In the latter villages forest land is not recognizable because so many of the trees have been destroyed. In general, forest lands are community owned. (6) Shelter belts or groves of trees along the seashore or on crests of hills for typhoon protection. These are known as *bōfurin*. The trees are distinct from the forest lands; often they stand in isolated groves. In the south trees for typhoon shelters are confined to the settled area. There are no large groves surrounding and protecting the whole cultivated countryside. (7) Religious sites (*haisho*). These are small in area, the sites of buildings devoted to the local tutelary deities (*ujigami*). (8) The village community property (*kōyūchi*). This may include the village office site and school grounds. (9) A miscellaneous classification (*zashuchi*). This is also public property, including vegetable plots, small public squares, very small parks, ponds, road meeting places and the like. These combined areas are usually small. (10) In the Gushichan area, there is one further classification: destroyed land (*tsuborechi*). This is land in the war area which has not been or cannot be restored. The pieces are not large. During the war a bulldozer may have made a road out of this land; it may be filled with stones or the shallow top soil of the land may have been scraped off in leveling for an army post or camp. 311 [127]

The bases for grading land within each class are different. In Gushichan township, the main consideration in grading rice land is the availability of water. First class rice land is where the water is. In this township, there are seven grades of rice land, although any one village may have only four or five. The first five grades in the township are rice lands with two yields a year. Grades one through five are determined by the yield of the plot, through past experience. Grades six and seven are one crop areas. The distinctions between the grades can be seen in the following table: 311 243 [312]

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[433]

Grade of Rice Land	Expected Yield in Koku per Cho
1	24
2	18
3	15
4	12
5	7.5
6	6.7
7	6.0

A *koku* is 5.12 US dry bushels. A *chō* is 3000 *tsubo*, about 2.45 acres. [804]

If there is a drought in any year, the grades of land are not changed the following year, but the estimate of expected yield may

311 243 be lowered. If the rainfall is unusually low, the estimated yields may even be cut in half. Grade differences are also shown by the Oushichan tax table on rice land:

[651]

Class	Rate in Yen (per tsubo)
1	37
2	34
3	31
4	28
5	25
6	22
7	19

311 The grading of dry crop land is not so simple because various crops can be grown and there are difficulties in making equivalences of yields. The grading is more subjective and vague, with gradations based on the judgment of the land committee. It might seem that the grades of dry crop land based on subjective judgment would be difficult to agree upon. This is not the case. Farmers who have lived in the village all their lives, and who as children remembered the experience of their fathers, know their own and their neighbors' land well. Representatives from the village who suggest the grades are chosen by the farmers for their honesty, skill in agriculture, and knowledge of the land.

311 134 133 Depth of the soil, flatness, degree of stoniness and accessibility are the most important criteria. The first three of these follow naturally from conditions widespread in Okinawa. There often is very little topsoil. One can observe cuts in roads or sharp declivities which show soils only an inch or two deep before meeting the consolidated or unconsolidated rock below. The hilly and mountainous nature of the island enforces cultivation on slopes, summits, and rolling hills. Stoniness, whether large boulders or small pebbles or both is common. One of the occupations of the old in Minatogawa and Nagamo is to convert stony to arable land by tediously picking [887] up the stones and throwing them into piles for subsequent sale in road building. But often the boulders are so large that cultivation must curve around them. These conditions can be seen to good advantage in Nagamo. In Hanashiro, the soils are flatter, less stony, and deeper. Matsuda has wide areas of poor shallow and stony soils. [241] First class hatake land, then, is flat, deep, with few or no stones, and suitable either for sugar or the sweet potato and the various common vegetables.

311 With this standard of first class hatake land, the other grades are judged, mostly by inspection and through consultation and agreement by the committee. In the Oushichan township, there are ten such grades of hatake land, the tenth grade being so poor that it is virtually genya land. In dry crop land, probably the most important

single criterion is nearness, providing the land has possibilities. 311
Good land, unless of substantial area, if remote and far from roads, is very time consuming and inconvenient.

Genya land in the Oushichan area has two grades. The criterion [824]
here is the presence of grass and small shrubs that can be used for firewood. Grade two *genya* grows little or nothing either because of the large boulders or because it has too many small stones or unconsolidated rock with little vegetation. If it were not for stones or [134]
such topographical factors as steepness or ruggedness, some *genya* [133]
land could be classified as poor grade dry crop land. There are, as in rice land, tax differentials according to grade of *hatake* and *genya* land:

[651]

Grade	Dry Crop Land Tax in Yen	Wild Land (Genya) Tax in Yen
1	13	2
2	12	1.80
3	11	
4	10	
5	9	
6	8	
7	7	
8	6	
9	5	
10	4	

In Ginoza-son, the land classification system is substantially the same. There are six different grades of land classified according to yield in *go* per *tsubo*. (A *go* is 1/1000 of a *koku*, a *tsubo* about 4 square yards). [804]

[433]
[241]

Grade	Yield	Remarks
1	5	Two annual plantings.
2	4	Two annual plantings.
3	3	Dependent entirely on amount of estimated rainfall.
4	2	
5	1.5	
6	1.0	Mountain paddy, very uncertain, depending on rainfall; occasionally two crops a year are possible.

Dry crop land is judged by criteria similar to those in Oushichan-son. Grade 1 is good soil and convenient to water with good yields as [134]
shown by experience. Grades 2 and 3 are convenient to water, but soils [312]
are of lesser quality. The classification is also based on experience. Grade 4 is in low places, generally narrow ravines between steep [133]
wooded slopes. Grades 5 and 6 have little or no water, are stony, and inconvenient.

311 Land classification in Okinawa proceeds from the village to the township and then to the whole island. Each class of land in a village has its own grade. By combining these grades a township classification is made. This is done first by village committees determining the grades for each of their classes of land, and then by setting up a table of equivalences after discussion by the committee representing the whole township. Matsuda's first grade dry crop land might be considered by the land classification committee to be equal in quality to Ginosa village's second class land. While there might be only six classifications for any one village, when all these are combined, there may be ten grades for the township. This is shown by the table of correspondences for Matsŭda and neighboring villages in Ginoza-son, as of November 1951.

In this illustration, Matsuda's first class rice land is considered second grade on a township wide basis; its sixth grade dry crop land is grade nine, and its first and second class houses are by comparison, grades three and four in the whole township.

311 623 632 With minor variations, the procedures in classifying land are the same in both townships. Each village makes the classification of its own land. This is done by five villagers, chosen by the people for their knowledge and integrity. In Gushichan township, village experts are designated to serve on the township committee.[8] Seven men from the villages are joined by the mayor (sonchō), the vice-mayor (joyaku), the trade and industry section head, the agricultural section head of the township office, a total of eleven men, who then determine the township classifications. These committees make inspections of doubtful cases, often after working hours. The field trips usually end up with a sake party. [574]

In Ginoza-son essentially the same procedures are followed. Each village sends representatives, the number being determined by the area of the village. In late 1951, this village-wide committee had 24 members with the township mayor as chairman. Each village prepares its own land classification map. The local classifications, later combined to make a township-wide classification, have the advantage of limiting the range of grades in a small area and of comparing parcels close together.

Occasionally the grade of a plot is changed to correct an error or to make it consistent with an improvement. A new road may make a plot of land more accessible and thus change its grade.

311 651 433 556 In all the villages studied, land classification was important for the same reasons: for tax purposes, for estimating future production, and for the individual farmer, a means of demonstrating tangible wealth.

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[8] One representative each is chosen from the villages of Gushichan, Aragusuku, Koshihara, and Nakaza villages, one from Oton and Hanashiro combined, one from Asato and Yoza combined, and one from Minatogawa-ikku and Minatogawa-niku combined.

TOWNSHIP LAND CLASSIFICATION
(Correspondences)

311

1. Rice Land (Ta)

Township Grade	Villages of:			
	Kenna	Sokei	Ginosa	Matsuda
1	1			
2			1	1
3	2	1		
4				2
5	3	2	2	
6			3	3
7		3		
8	4	4	4	4
9	5	5	5	5
10	6	6	6	6

2. Dry Crop Land (Hatake)

1		1	1	
2			2	1
3	1	2	3	
4				2
5	2	3	4	
6		4		3
7	3		5	4
8	4	5		5
9	5	6	6	6
10	6			

3. House Sites (Yashiki)

1			1	
2	1	1		
3			2	1
4	2	2		2

4. Wild Land (Genya)

1				1
2	1	1	1	
3	2	2	2	
4				2

5. Forest Lands

1	1	1	1	1
2	2	2	2	2

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6. Miscellaneous (Zashuchi)

1	1	1	1	1
2	2	2	2	2

311 487 363 One feature typical of these villages is the boundary path (sakai), sometimes only a foot wide. The path is a boundary and a means of access. Roads and lanes are in the main areas of the village. They do not checkerboard a whole area. Too much land would be sacrificed. The farmer leaves his home, walks along the road or lane, and then takes a winding boundary path to his own field. In the aggregate, considerable land is taken up by boundary paths. Often the sides of the plot along the path are cut perpendicularly to take as full advantage of the soil as possible. There is little slope from the path to the field, and the paths of the rice paddy often look like miniature levees.

311 423 In his Narrative of a Voyage of the Ship Morison, which appeared in The Chinese Repository for 1838, S. Wells Williams wrote concerning Okinawa: "Indeed the Lilliputian minuteness with which the country is subdivided is singular." The tables and the land use maps which follow document this observation. [217] The tables, which show the number of plots and their average size, for each village, were computed from land registers in the two township offices. The three main classifications, rice, dry crop, and wild land, have been selected. To appreciate the size of these plots, one should bear in mind that a 40' x 80' lot has over 88 tsubo and that an acre contains about 1210 tsubo.

[217] The maps represent a tiny portion of those cadastral maps collected from the township offices and of which tracings were made. They also illustrate the complete and painstaking subdivision of a village area and the general uses to which each parcel is put.

Rice Land (Ta)

a. Hanashiro

Grade	No. of Plots	Average Area in Tsubo
Total	201	140.4
1	59	52.9
2	36	160.8
3	44	182.6
4	58	179.8
5	4	212.5

b. Matsuda

Grade	No. of Plots	Average Area in Tsubo
Total	560	137.2
1	30	60.5
2	76	140.0
3	178	132.1
4	175	154.9
5	101	136.3

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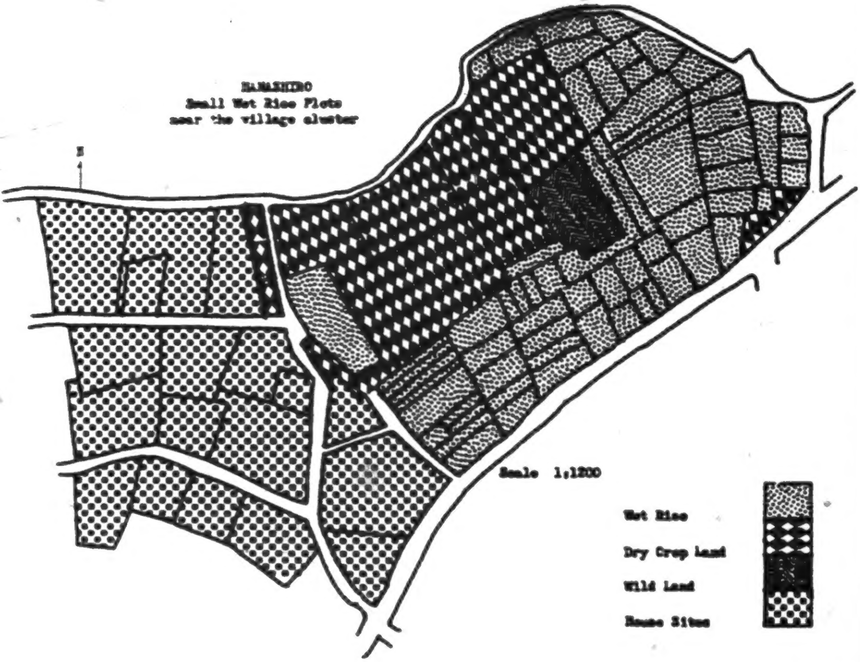
Dry Crop Land (*Hatake*)

Grade	No. of Plots	Average Area in Tsubo
	a. Hanashiro	
Total	497	327.1
1	51	320.2
2	73	357.0
3	140	327.9
4	108	335.7
5	98	293.3
6	27	343.5
	b. Minatogawa	
Total	207	256.5
1	0	—
2	3	394.0
3	24	316.2
4	41	309.1
5	139	227.7
	c. Matsuda	
Total	1155	162.4
1	30	148.0
2	106	174.8
3	300	159.4
4	436	174.2
5	207	148.9
6	76	131.3

Wild Land (*Genya*)

Grade	No. of Plots	Average Area in Tsubo
	a. Hanashiro	
Total	360	462.6
1	81	378.9
2	279	486.9
	b. Minatogawa	
Total	71	244.3
1	20	184.2
2	47	275.7
3	2	140.0
4	2	209.5
	c. Matsuda	
Total	1140	327.8
1	36	560.3
2	1091	320.5
3-6	13	301.5

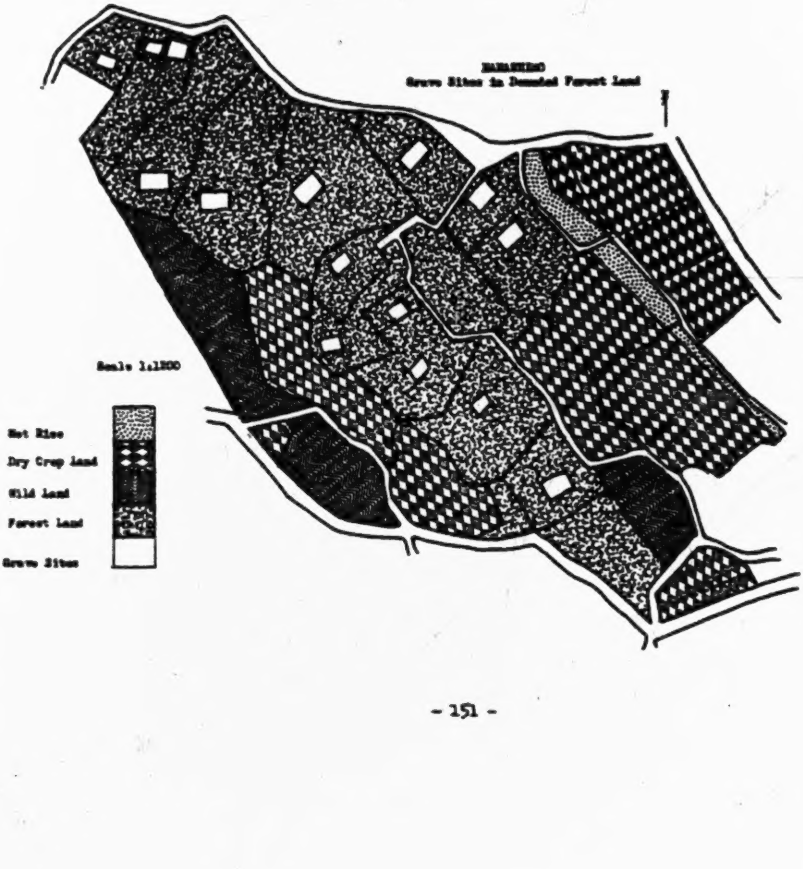
102
311



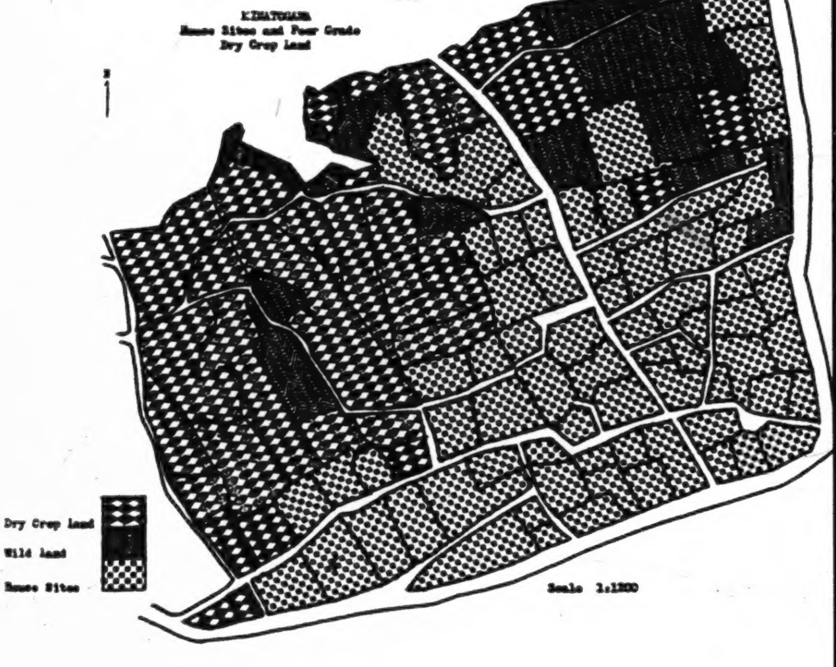
HANASHIRO
Small Wet Rice Plots
near the village cluster

N
Scale 1:1200
Wet Rice
Dry Crop Land
Wild Land
House Sites

102
311
764

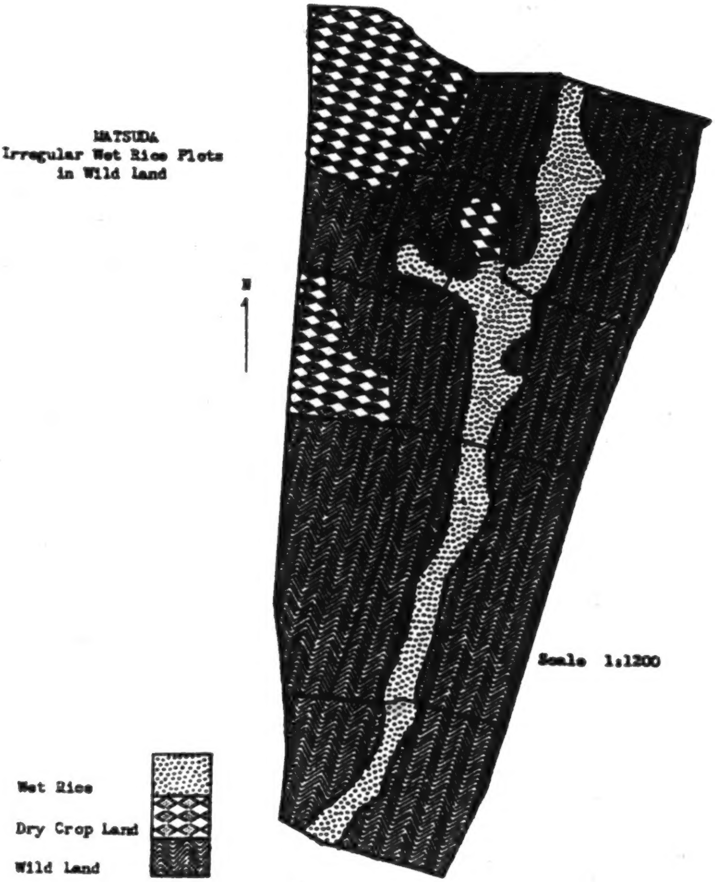

[illegible]
Grave Sites in Denuded Forest Land
N
Scale 1:1200
Wet Rice
Dry Crop Land
Wild Land
Forest Land
Grave Sites

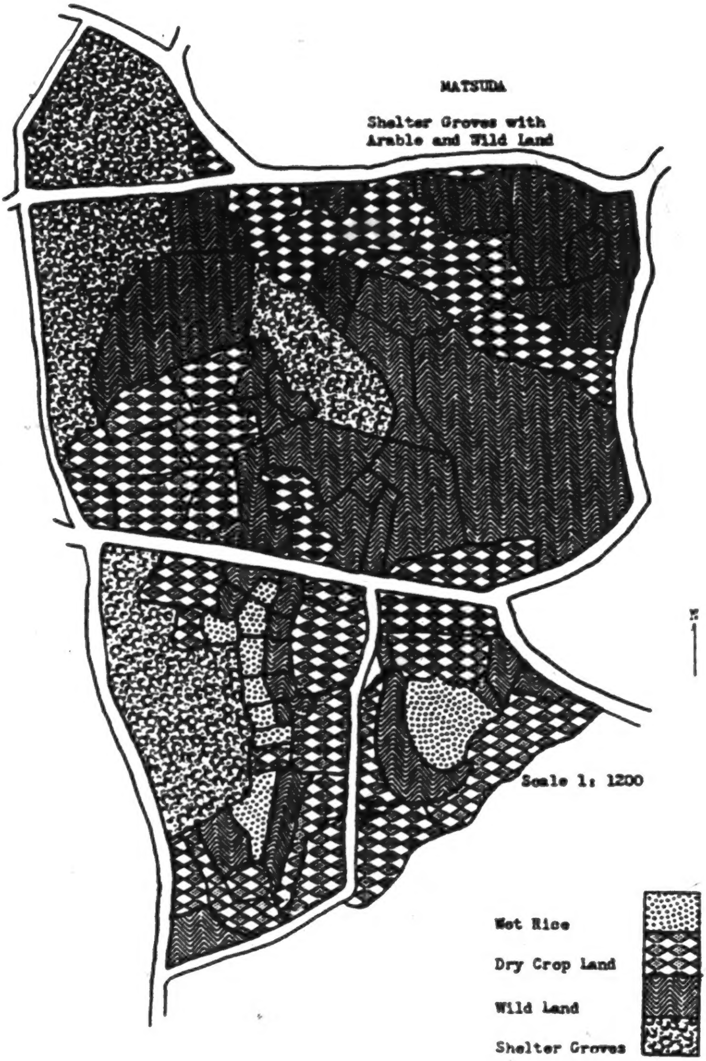
102
311
361


KINATOGAWA
House Sites and Poor Grade
Dry Crop Land
N
Dry Crop land
Wild land
House Sites
Scale 1:1200

102
.311

MATSUDA
Irregular Wet Rice Plots
in Wild Land


N
Scale 1:1200
Wet Rice
Dry Crop Land
Wild Land


MATSUDA
Shelter Groves with
Arable and Wild Land
N
Scale 1: 1200
Wet Rice
Dry Crop Land
Wild Land
Shelter Groves

731 313 The deforestation of the south over a period of centuries thus is related to water spray and wind damage, relationships which a wise administration cannot neglect.

121 The natural tendency is to think in terms of population and land and of the food which it can produce. But if the population is envisaged in terms of forest, the land, both cultivated and uncultivated, and the role of the uncultivated land in protecting the soil, broader understandings are possible.[9]

231 It is a significant fact, to use another example, that goats are tethered and not allowed to graze. They do not roam the hillsides, nor crop off the shoots of young plants. If they did, it is possible that legislation controlling the goat might have to be enacted such as has been done in the island of Cyprus.

311 731 185 It is important therefore, to ascertain how a culture makes use of its natural environment and also how it takes care of it. Typhoons cannot be controlled. Neither can periods of drought which often produce water shortages, prevent the planting of sweet potatoes, or the harvesting of a good rice crop. In areas where control is possible, the Okinawans have developed conservation measures. Almost one hundred years ago, Dr. D. S. Green, Fleet Surgeon attached to the frigate Mississippi on Perry's expedition to Japan, wrote:

175 185

> "Two objects seem to influence the islanders in all their operations, viz: the retention of water or moisture, and the avoidance of surface-washing. To effect these desirable ends, especially in a rolling country, a great quantity of grading is required, besides very deep culture; and here both of these have been done."[10]

000 In the areas studied, no serious sheet erosion was observed.

[Text continues top of P. 157--Analyst]

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[9] The general ideas and points of view expressed by Edward Graham in his Natural principles of land use, London, New York, and Toronto, 1944, are pertinent here.

[10] Hawks, Perry's expedition to Japan, as cited, II, 26-27. The emphasis is in the original. Green continues with further details of grading around streams, along ravines, and on the uplands. His description today would still fit many parts of Okinawa. He was particularly impressed with the lands on a journey between Nugah (i.e., Nago) and Tanegah, southwest of Unten. His whole passage is well worth reading.

Two other forms of land conservation and maintenance, crop rotation and fertilizers, will be discussed under agriculture.

●311 Slow conversion of land to arable fields is constantly going on in situations in which the amount of labor involved is not even considered. One such activity in the Minatogawa area is typical. [134] Originally the field could not be worked because of the large quantities of smaller boulders, stones, and pebbles, all small enough to be carried off, too numerous to encourage hopes for quick transformation. With difficulty this land is worked with the short [412] handled broad bladed hoe. The hoes with two or three prongs are used for softer soils. This hard hoeing is often done by women. [462] The surface stones are thrown aside into little piles along the road. These can now be sold for use in road construction. The vegetation [491] on the surface is also turned under. Later in the year, after the rain has gone into the loosened soil, it is hoed again, and this time it is possible to go in deeper. Weeds, rice straw, unused miscanthus, straw from the pig or goat pen may be added, and this is allowed to rot in the soil. Then the field is hoed again, and the deeper rocks and stones, and those left behind before, are unturned and the process is repeated. In the end, and this period may vary from one to several years depending on the quantity of stones, the farmer has a plot of [134] land, of a rich chocolate brown color, of fair texture and fertility, suitable for growing sweet potatoes.

133 In Matsuda, there is a slightly different situation. The topography here has a different character than that of the south. Hills, 311 caves, sinks, and slopes are everywhere, and as a consequence, cultivation is more scattered. In the southern villages, land use follows a more recognisable pattern. The low flat areas are used for rice, the higher parts of the flat land and the slopes and the rolling upland for dry crop land, while the highest parts on the hill or mountain summits are in grasses, shrubs, and scattered scrub trees. In Matsuda, these are all mixed up. Rice may be growing in a genya area. In another part of the village, sweet potatoes may, in a similar situation, be the rule. This crazy-quilt pattern of rice, genya and dry crop land, all adjoining, stimulates the gradual conversion of genya to arable land. When rice is made out of the genya land the converted plot is known in Okinawan as gata. It is a laborious process of clearing, removing stones, hoeing, cutting perpendicular sides, making a hard surface to contain the water for the rice that will be grown. In some sections of Matsuda, the very small valleys have been converted to S-shaped rice plots.

311 Casual observers often see unused land and conclude that large amounts can be reclaimed. They do not see the stones, or the hard- 134 rock which may be an inch or two below the surface. They would do well to look at village maps to see how these lands are regarded by the villagers who have tilled them. Probably more efficient conversion and reclamation could be carried on with machinery and with the generous use of fertilizers.

311 In the desire for more land, it should not be overlooked that 185 the great conservation value of genya land and the poorer upland

plots lies in their being as they are, separating one cultivated area 311
from another, binding the soil, and that they are probably serving 185
their best purposes now, as they have in the past, in furnishing this
protection.

The conservation practices of the Okinawans are at least in 185
part a consequence of the topography. The care of upland areas and
rolling hills is imperative. For a great deal of cultivation takes 133
place here. Unlike China, there is not a strong contrast between 311
large scale paddy rice in alluvial soils and the relative neglect of
upland areas with deforestation and erosion. In China the meticulous [191]
care of the transported soils of the lowlands and the neglect of the
uplands is a striking aspect of the attitude toward land. This is
true, perhaps to a lesser degree, of Japan.[11]

In Okinawa there are insufficient delta plains and alluvial soils to provide these contrasts between lowland and upland agriculture. The scarcity of river deltas and alluvial plains means relatively little rice and the use of the rolling hills and the steeper sides of mountains. This necessity has enforced a care of the uplands. It is true that one often sees sweet potatoes or other dry crops growing in rows up and down a hill instead of along contours, and that there seems often to be a lack of appreciation of the consequences of misuse of forest land through clear cutting. But in the main in the use of the uplands for cultivation, the weed borders or rock fences, and other simple devices keep the soils from erosion. The relatively gentle topography has also contributed to this achievement.

4

Fragmentation and Consolidation

Fragmentation of land is common in Okinawa. Ownership of con- 423
tiguous plots of land is not the general rule. It is a basic fact of
land tenure and influences land use and agricultural practice. This 241
fragmentation is a deterrent to the use of machinery, unless co-
operatively owned or unless certain individuals specialize in the

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[11] See James Thorp, Geography of the soils of China, Nanking 1936, especially Chapters xii-xiv. Gourou, Pierre. The development of upland areas in China, and Trewartha, Glenn T., Utilization of Upland areas in Japan. In: The development of upland areas of the Far East, Vol. I. (Institute of Pacific Relations), New York, 1949. Trewartha describes his surprise in his earlier studies of Japan and his acquaintance "with the fact that the Japanese, like most Orientals, greatly deprecate the value of upland or non-irrigated sites for agricultural land use." (p. 59). This choosiness is not possible for the Okinawans.

423 241 business. Fragmentation means inconvenience, loss of time and effort in the simultaneous cultivation of different fields. The situation is the same for the well-to-do and the poor alike. Large holdings do not mean single pieces of land within a large area, but many small parcels of land, of different classification and grade, scattered like those of a less prosperous farmer. There are offsetting advantages. The greatest of these is that crop destruction through typhoons, salt spray, or flooding may be less catastrophic to the individual owner with small scattered holdings than if a family has a single large plot of land.

423 425 Another effect of fragmentation is that it makes a particular plot of land difficult to sell. If one has a small plot of land, an island in a sea of other ownership, the prospective buyer is in the same position as the seller, unless the buyer owns contiguous land and has the money to make the purchase.

423 The natural question at this point is: what are the possibilities of consolidation of ownership in the interests of more efficient and convenient agriculture? The general answer, I believe, is that fragmentation is almost inevitable, consolidation only possible.

In both of the agricultural villages studied, some voluntary consolidation (kokanbungo) has taken place, but it is not of major proportions. It occurs chiefly for two reasons: (1) clustering one's land near the house site, or having two or more parcels of contiguous land is universally desired. Going to and fro is considered troublesome and onerous. (2) When branch families are established, farmers wish to exchange a distant plot for one in the village for a house site. This is often difficult to do, for such an exchange must be mutually advantageous to bring about a transfer.

423 731 Typhoons are a major obstacle to voluntary consolidation into large holdings. It is perhaps possible to exaggerate this, but personal experience and conversation with villagers who have lost the entire crop of one parcel but have salvaged part of the crop of another convince me of its force. A typhoon damages a whole area but the scattered holdings provide the chance that something might be saved. The total damage is the same in any event regardless of ownership. It is the distribution of loss that varies. If in the future, land consolidation were attempted on a broad scale, either by voluntary individual effort, or cooperatively, crop insurance or some form of sharing losses would seem to be necessary.

423 ● 311 407 The present system of land ownership and of land use and the fragmentation of land would seem to preclude any extensive mechanisation of agriculture. Even with consolidated holdings, the nature of the landscape might make the effort uneconomical, though this is a question for technicians in these fields.

5

Conclusion

The sources of the present land tenure and land use practices are to be sought in the old land allotment system. The original fragmentation of land was due to the land classification based in turn on the fact that excellent, good, and poor lands were not in one area, but were scattered. Further fragmentation has come from land division because of the establishment of branch families. With each generation a further fragmentation will take place. The present system of land tenure and of land use is to be explained, therefore, as a result of the ancient family system working first within the framework of the old allotment system, and then within the introduced Japanese system of inheritance, with practices of land use retaining some of the influences of the old. 423 311 428

The experience of the next few years in Japan will be interesting to observe. With equal inheritance for each child, will there be a hopeless splintering of land or land speculation in the sale of small holdings? Before any changes are made in the present Okinawan inheritance laws, the possible effects on land use and agriculture should be studied. Considerations should not be confined to a legalistic or sociological approach to the family itself. Besides of what value to the heirs would splintered, minute, and fragmented holdings be? 000

132 March through June is the season of greatest rainfall and therefore
731 of greatest flood danger. September and October rain is often light,
and it is during this period that there is the greatest likelihood
that the sweet potatoes will dry up. During the rainy season, there
is flood damage to the rice and dry crop fields, especially if they
are in the narrow ravines, or along small stream beds.

132 In Hanashiro, dependence on rainfall is immediate and direct.
There is no way of storing water in the mountains by accumulations
312 of snow. Runoff from the hills into the small streams is rapid. Short
241 periods without rain are serious. The planting of the sweet potato
is very sensitive to this factor. If one asks a farmer when he plants
sweet potatoes, he always qualifies his reply by beginning, "If there
is enough rain..."

241 There is in these villages no complex irrigation (kangai). In
Hanashiro, the flow of water through rice fields and its division are
312 controlled by simple means. Water comes from the nearby hills, either
in rivulets or in slightly wider ditches. In the former case, the
water is divided by allowing the owner on one side of the stream to
get water one day, diverting it on the next to the other side. The
larger streams may be forked.

Streams soon lose their identity as they descend from the hills
[133] to the lowlands, where they become the water of the paddy. The streams
of Okinawa are hidden in the rice fields.

241 In Matsuda, the flow of water down the hillsides is controlled
largely by bench cultivation. Rice paddies go far up the narrow valleys
●311 and ravines. When these have been converted to rice fields, the water
312 flows into the highest level. A small aperture on the opposite side
allows it to fall into the next lower paddy until the water reaches
the level of the valley or lowland, where it may be further dispersed
throughout rice fields, or trickle off again as a stream. In this way,
the flow of the water, not too fast, not too sluggish, provides continually fresh water with its nutrients from the hillsides for each
field, and makes possible the irrigation of large areas.

It is for these reasons that terracing is practiced. Cultivation is easier. So is irrigation. Soil runoff is avoided. Terracing is the only way that a ravine or a small slope can be used for paddies, for which a flat and level piece of land is required. Otherwise, the water necessary for the plant runs off.

Rotation #2, Matsuda

242 221 **First year, ninth month: Autumn planting of sugar cane**
Second year, twelfth month: Harvest of sugar cane. Followed by: Soy bean, sweet potato, or vegetables.

● 311 423 Land is seldom allowed to lie fallow intentionally for any length of time. At any one time of the year, a farmer may have idle land for which there may be a variety of reasons. He may have other tasks and be unable to cultivate all his land, or have no need of doing so, or some of his land may be so poor that he will not cultivate it unless necessary. Much depends on the individual farmer and his holdings. The village records indicate that in Hanashiro 97.2% of the rice and 83.1% of the dry crop land is under cultivation. From the preceding discussion of land classification, it is clear that many parcels are of marginal quality, and these areas may be left uncultivated, at least part of the year. During the post-war period there has been some informal lending of land, free of rent, to friends and neighbors, if the farmer is not using it himself. [426]

241 [231] [227] [482] [415] [493] Manual labor with hand tools is the dominant method of cultivation. Domestic animals are not uncommon, but their use in farming is minor. The war increased the dependence on manual labor through the loss of domestic animals. Only cattle are now used in rice cultivation for plowing and harrowing and this is infrequent. The man or woman and the hoe are far more common. Crops are carried from the fields by human labor. The basket or the straw container, or the tied rice sheaves on either end of a pole over the shoulder, and not horse carts, push carts, or wheel barrows are the main means of transport from field to courtyard. The barefooted farmer, with his hoe and a pole or a basket does the greatest part of the work. The common tools of agriculture are hand tools and adapted to the intensive cultivation which so often has more properly been called the work of a gardener rather than that of a farmer.

412 [434] The basic all purpose tool is the solid bladed hoe. The hoe, since deep cuts are possible with its heavy blade, takes the place of the plow. The hoe also replaces the spade, and even the rake, for it can be used to break up and smooth the soil. A poorer farmer may lack many of the tools in the following list, but he will have two or three of the solid bladed hoes.

The accompanying illustration shows the most common agricultural tools:

1. The *hera*, a spatula or trowel, used for transplanting tops of the sweet potato. Its wooden hand grip curves toward the end of the tool. The *hera* is also used as a scraper to remove brown sugar from the sides of the cooking pans during the sugar making season.

2. The *kama*, a small sickle. Next to the hoe, it is the most

of the young shoots from the seed beds to the paddy field, (4) the care of rice until its maturity, (5) the harvest, (6) threshing, milling, and hulling, (7) the uses of rice and its byproducts, and (8) types and preferences of rice. 243

The preparation and laying out of the seed bed. A seed bed (*naidoko*) is a plot of first grade land, well watered, specially chosen for this purpose. It is very small in area, often around 15 *tsubo*, or about 540 square feet. The seed bed also may be a portion of a larger field set apart for seedlings. In this case, small boundaries are made by earthen walls, apertures left for water to flow in and out, and the little plot is then prepared for the seedlings. Considerable care is taken in the preparation of the seed bed. The soil here must be finer and more carefully worked than the paddy field, since it receives the rice seed, not the seedlings. The soil is painstakingly worked, and, with the water added, becomes a thick smooth mud. Commercial fertilizers, composts, and less commonly, night soil are then applied. After the seed is sown, water, perhaps 2 1/2 inches deep is allowed in the bed. During germination, a slow steady irrigation, a washing by new water is maintained by controlling the water trickling in and out of the openings on either side of the field. [311] [134] [312]

The selection of the seed. The seed is taken from the harvest immediately preceding. After fall harvest around December, the rice fields are dug to prepare for the new planting in January or February. The seed used from this crop is tested in one of two ways. 243 242

In Matsuda, it is common for a farmer to fetch a bucketful of sea water. To this he adds a little more salt until the density of the water is sufficient to float an egg. The rice seed is put in the water. The light and undesirable grains rise to the surface. This salt water density method is apparently very old and originally came from China. [177]

Another method, based on the same assumption that the lighter grains make undesirable seed, is used in both villages. The rice is tossed in a round, shallow, winnowing basket, and the breeze carries off the undesirable seeds to the chickens. In the summer planting the seed, after this testing, is ready to sow. In the fall and winter planting, there is one further step. After the seed has been selected by the winnowing or the density method, it is soaked in water for four or five days. Following this, it is removed from the water, put in a tub, and covered. Warm water is added, the mixture is stirred and allowed to stand for another four or five days. The water is then poured off and seed has begun to germinate. The seedlings can now be planted in the seed bed.

Transplanting the young shoots from the seed bed to the paddy field. 243 In the meantime, the paddy fields have been prepared. After the harvest, the field is drained. Small clumps of cropped rice stalks stick up two or three inches where they have been cut with the small sickle or bill knife. This stubble is turned over either by hoeing, the usual way, or melon can be saved for a year. It is also served raw with vinegar and sugar dressing, often mixed with another vegetable to make a salad called namasugwa in Okinawan. 241 262 [252]

(8) The burdock (gobo) is also very minor and usually grown for home use. It is boiled when eaten.

(9) The carrot (ninjin) is a minor crop.

(10) The trumpet or bottle gourd (yūgao) is only grown in Matsuda and for home use as a summer food. [184]

(11) Spinach (hōrensō), onions (negi), Chinese lettuce (hakusai) are not uncommon. Spinach, lettuce (chisi), and onions do not have the importance either as a crop or a food that they have with us.

(12) The taro (satoimo in Japanese, Colocasia esculenta Schott) can occasionally be seen growing in Hanashiro or Matsuda, often on the edge of a rice field. It is known locally also as taimo and apparently is the same as the Japanese dasheen. The taro is used as a side dish.

(13) The Irish potato (bareisho) is occasionally grown for sale. [432]

(14) Cabbage (tamana) is partly a cash, partly a home use crop. It is also minor. Some Okinawans like cabbage and grow it for their own use, but many dislike it and sell the crop.

(15) The grains are an unimportant part of village agriculture. The most common are barley (ōmugi), wheat (komugi) and millet. (Mugi is a general term for grain. The ō means large, the ko, small, referring to the kernels of the two grains). [193]

Although comparable statistics were not available for each of the villages, the following table from Hanashiro clearly shows the relative importance of the major crops: 241 311

HANASHIRO
Crop Acreages, 1950

Crop	Area in Chō [a/]	Percent of Total
Rice	10.89	100.0
Total Dry Crop Land	59.88	100.0
Sweet Potatoes	35.86	59.9
Soy Beans	13.63	22.8
Sugar Cane	5.41	9.0
Beans and Peas (excluding soy)	2.30	3.9
Wheat	1.80	3.0
Millet	0.50	0.8
Vegetables	0.38	0.6

241 a/ A *chō* is 3000 *tsubo*, or about 2.45 acres.

311 Source: Agricultural Section, Gushichan Village Office, Gushichan-son,
[804] Okinawa, September 1951.

In Ginoza-son, statistics for crops on an individual village basis were only obtainable in part. Some Matsuda figures which were available indicate that rice, the sweet potato, and sugar cane were the most important of the crops:

Rice lands		82,151 tsubo (about 27.4 *chō*)
Summer planting:	58,000	
Fall planting:	54,000	
	112,000 *tsubo*, including double cropping.	
Dry Crop Land		188,305 tsubo (about 62.8 *chō*)

Sugar Cane:	
Summer planting	2170 *tsubo*
Spring planting	6840 " "
	9010 *tsubo*

The greater part of the remaining dry crop land is believed to be in sweet potatoes.

8

Native Uncultivated Plants of Use to Man
(Other than Forest Trees)

824 In the south, trees such as the banyan (*gajimaru*), the Japanese redwood (*sugi*), and the *usuki* are important within the village as windbreaks. The importance of *miscanthus sinensis*, often called *kaya* or *susuki*, has already been mentioned. Certain plants, used for medicinal purposes, are becoming scarce and are being displaced by modern drugs, but have some interest. Other plants, formerly used in home industries for weaving and making straw sandals, have also declined in importance in the villages.

In the south one of the most interesting associations is that of the Ryukyuan pine (*Pinus ryukyuensis*), the cycad (*sotetsu* in Japanese, *Cycas revoluta*, Thumb.) and Chinese silver grass (*miscanthus sinensis*). The Ryukyu pine in this area is little more than a shrub. It has some uses for firewood and for minor construction, but the lumber for substantial houses comes from the northern forests.

The cycad, now rather uncommon in this area, has had several uses. The whole plant may be a windbreak or be used for firewood. A form of starch (*renpun* in Japanese, *kuzu* in Okinawan) is made from this plant, [262] a food traditionally used in time of great hardship or crop failure.

The starch comes from two sources; the large oval seed, ranging from orange to Chinese red when mature, and the stalk. Use of the stalk involves destruction of the plant. According to Gushichan area residents, the starch of the cycad seed was used for food in 1945, 1946, and parts of 1947. Timing is an important part of the starch making because at certain stages of development the cycad is poisonous. Today in areas where the cycad is plentiful, the seeds are still gathered and dried in large quantities. Toward the end of November in Oku and in the nearby mountain village of Hedo, and in other villages of the far north of the island, large quantities of cycad seeds can be seen drying in the compounds. In the Hanashiro and Minatogawa area, the cycad is not plentiful enough and is too scattered for these uses. 824 262

The main uses of miscanthus are: (1) roof thatch, including the saddle back which caps the roof, (2) firewood, (3) the younger shoots for animal food, (4) fertilizer, (5) a raw material for home weaving of baskets and slings for carrying vegetables. 824

Miscanthus can be seen to best advantage in December when it is in full bloom and covers large areas of the uncultivated countryside. Considering the present economic situation in the south, these plentiful grasses are indispensable to daily living. One must see, from day to day and with his own eyes, the dependence on these wild grasses to appreciate the force of this statement.

In the southern area studied, one consequence of the war on the natural vegetation was the spread of the grasses at the expense of the pine and the cycad. Residents of the Hanashiro, Gushichan, and Minatogawa areas have said that prior to the war, the Ryukyuan pine was plentiful and covered hill and mountain sides now quite bare, save for an occasional scrub tree. These trees were destroyed by bombing and firing. There are occasional evidences of regrowth due to natural seeding, but the clumps are small, and nothing like a stand is growing. The stands even before the war, however, must have been inconsequential compared with descriptions of the area fifty years ago given by old residents of the area. The present deforestation of large parts of southern Okinawa seems to have accelerated in the recent past. 137 727

The cycad had a similar fate in the south. The plants are numerous in the sense that one can always be observed on a walk. They grow in clumps, often alongside the pandanus. The grasses seem to have displaced the cycad and the pandanus as well. The dense settlement, cultivation, use of trees for firewood, and the recent war account for the uncultivated hillsides in which the grasses now predominate, and on some of which not a single tree or shrub is to be observed. The original native vegetation, perhaps, may still be preserved in the limestone sinks which occur here and there in this area. 137 [311]

In Hanashiro, the absence of trees and shrubs except in the settled areas has already been noticed. This is a characteristic of villages in the south. The treelessness of Minatogawa is exceptional.

231 special holiday occasions. Pig killing or the killing of any animals
[825] is distasteful. The pig generally is driven out of the pen to a
[443] waiting truck or horse cart and hauled squealing off to market.

Considerable interest is being shown (early 1952) in the scientific
232 breeding of pigs from stock imported from the United States. Chester
[177] White is a well known word among the farmers of Matsuda. In this area,
regional meetings of pig breeders and raisers from the northern part of
Okinawa and the Motobu peninsula are held to discuss the care, breeding,
and marketing of pigs. These farmers have come a long way from the
earlier days, even 25 years ago, when the toilet and the pig pen were
the same. A farmer going from one of his fields to another often
stops home to look at the pigs and perhaps to discuss his problems with
[474] a friend. In Matsuda, a pig growers' association has now been started.

231 Domestic animals, especially the pig, can be expected to increase and to reach at least their pre-war level, if the villages studied are typical. This development will be all to the good. The pig consumes food not fit or not used for human consumption. It does not compete with humans for food. It is unlikely that land now devoted to the production of human food would be diverted to animal food. In my observation, there is not a strong competition between animals and man for the products of the land. Domestic animals really round out the agriculture and consume food that otherwise would not be used.

[311] The lack of grazing land, except on the hill sides and summits, means that domestic animals must be fed with food grown and prepared and fed to them by the farmer. Grazing also would be out of the question since the land on the hills is privately owned and split up in small parcels. The young plants are valued too highly to permit indiscriminate grazing.

Goats are cheaply raised. The only expense is the labor of
[435] getting leaves, grass, and tender shoots from the family's genya
land on the hills. In the market, goat is the cheapest of all meats.
There are also sharp differences in taste among villagers for goat's
[262] meat. The milk is not used as a food. Goats are tied up or kept in
stalls for their entire life. They are never allowed to roam through
the village or to graze on the hill sides. They are not given water
and depend entirely on the water in the grasses and shoots which they
are fed.

Horses, cattle, and oxen are fed grasses, mashed sweet potatoes,
and waste bean curd. Though occasionally used in rice fields, the
[492] chief use of horses is in drayage. In Matsuda, the horse and the
two wheeled cart make frequent trips to the mountains to transport
the longpoles, firewood, and charcoal.

235 Chickens are fed anything that might be on hand. Often they
are given the chaff from the rice or the rice that is blown off in
[262] winnowing. Occasionally chickens are eaten, but they are kept primarily

324 432 [494] [483] [804] The truck or horsecart of the buyer comes to the stonecutting area, the blocks are loaded and taken away. Prior to sale, for convenience, stone may be taken from the cutting area. It is loaded on horse carts, the men carrying the heavy blocks by means of ropes looped around the ends of the stone and over poles which in turn rest on the shoulders. A six foot length (1 ken linear measure), one foot wide and about ten inches thick sells for ¥140 (1951-52).

[435] 316 [169] [142] Foot injuries are the chief hazards of this occupation. The toes may be accidentally cut by the long chisel, and there is danger of bruising or crushing by accidentally dropping the block, or by rolling when it is being dislodged. Very hard and calloused hands are the mark of the stonecutter; his hands are especially conspicuous for the hard, raised areas on the palm around the base of the fingers, the result of the constant lifting and pounding of the long chisel. There is also danger to the eyes in flying chips but few use glasses or goggles.

[561] Like some phases of fishing, this work is for the young and the physically mature men. After the middle forties or early fifties, a man no longer does the heavy work and confines himself to lighter chores. The very old and the retired may chip and finish the foundation and the pyramidal stones.

472 If a cutter is unable to extract all the stone in a plot whose stone he has bought, there are also customary solutions. When the father dies, his son continues the workings and returns the field to the owner. If a stone worker moves to another village when only half the work has been done, he arranges for a friend, relative, or neighbor to take over the remaining part.

4

Restoring the Land

185 311 [499] Formerly excavations (which might be 10 or 15 feet deep and the size of a large room) were refilled by the buyer of the stone rights. Rocks, pebbles, and miscellaneous trash were used as fill, but following the war there has been a heavy demand for rock and stone for road construction. As a consequence, many excavations are now only partly refilled. After refilling, houses are built on the sites of formerly excavated land. Here and there one can see sweet potatoes or vegetables growing on land which formerly was covered with stone. The original state of the land, its appearance after excavation and its restoration may be seen in Figure 2. Evidences of this reclamation may be seen throughout the stoneworking area.

324 Minatogawa, because it lacks vegetation for protective and decorative purposes, is a good example of the use and adaptation of stone to local needs. There are still stone fences, waist or shoulder height, and many small stone boundary lines, a foot or two and of uneven height. Coral stones, weathered by the sea, honeycombed and pocked, are seen everywhere.

MINATOGAWA-NAGANO STONECUTTING OPERATIONS

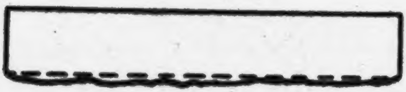

Fig. 1

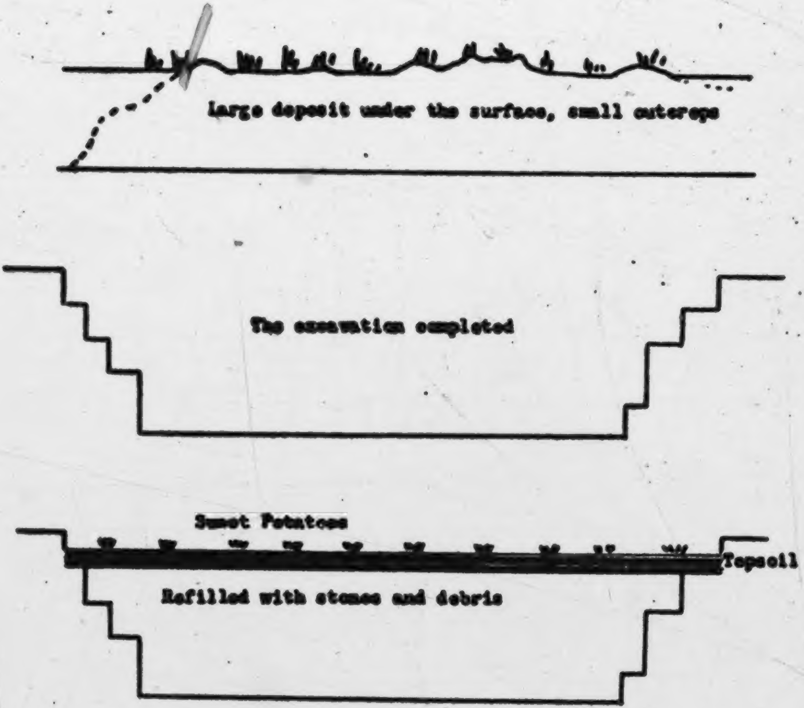
large deposit under the surface, small outcrops
The excavation completed
Sweet Potatoes
Topsoil
Refilled with stones and debris

Fig. 2

1

An Historical View of the Okinawan Forest

Northern Okinawa is the woodshed of the island, and there is a steady stream of lumber for building, poles for a variety of uses, charcoal, and of small bundles of wood for the people of the south. In the village of Matsuda, the forest is part of the daily life and economic well-being of the people. 313

Little is known of the past history of the Okinawan forest. 137 174

> "Though it is impossible now to determine the nature and distribution of the original forest cover, it seems reasonable that the major part of Okinawa was originally covered by trees. The forest was probably absent from the beaches, a few marsh areas behind the beaches, rock ledges upon which trees could gain a foothold, and perhaps some areas of Regosols (shallow soils) from calcareous clays in the southern part of the island. It is evident that the present forest has been cut over many times. There seems to be no part of the island in which the forest cover has not been disturbed in some way by man."[1] [311]

The virgin stands have disappeared and left few clues, these authors continue, but it is likely that the original forest cover was comparable to the present stands in composition of species. The authors point out the relationship of cutting to settlement. Cutting must have been a continuing process. In Saion's time, in the 18th century, there was considerable tree planting and measures were taken to protect groves of trees for their value as windbreaks. Excessive cutting could hardly have taken place in olden times in the central areas of the north, whose trees, even today, can be reached only by footpath. No doubt in the past cutting has spread out from village sites and travelled roads. Fire may have been one cause of deforestation, as it has been used to clear land. There are still instances of this. 137 311 174 [245]

In Okinawa, the period from 1879 to the end of the Russo-Japanese war seems to have been one of widespread deforestation. (This was contemporary also with the reckless deforestation in the New World). The period after 1906 reflected Japanese concern with forest preservation, especially of the nationally owned forests, a program pursued with varying degrees of success. [185]

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[1] Okinawa forests (U.S. Geological Survey. Mil. Geol. Sect., Office of the Engineer, GHQ, FEC), 1948, 2.

000 varying degrees of success.[2]

●311 Another period of recklessness began in 1935 and reached its climax in 1940-41. This deterioration was simultaneous with the increase in the acreage of cut over forest land in Japan beginning in 1941.[3]

313 [72] In Okinawa, exploitation of the forests immediately before and during the war were due, according to residents who lived through the experience, to unrestricted cutting for troop shelters and to the large Japanese military requirements for wood. The war's end brought no relief to the forests. Housebuilding and firewood are continuing challenges to forest conservation in Okinawa. The destruction of houses in the populated south caused continuous cutting for building and firewood. In 1947, rates of cutting were estimated to exceed replacement, the main drains being for housebuilding, firewood, and charcoal.[4]

2

The Forests and the Trees of Matsuda

423 311 Matsuda has a large area of village owned forest within its borders. These village owned lands are a survival of the old land allotment system when the arable, the forest, and the wild (genya) lands were community owned.

[Text Continues Top of p. 226--analyst]

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2 Civil Affairs Handbook Ryukyu (Loochoo) islands, 143, gives these dates as 1879-1906. For a published summary of Okinawan forests, their pre-war and post-war problems, and the role of the Ryukyuan Forestry Agency, see M. Y. Nuttonson, Ecological crop geography and field practices of the Ryukyu islands, as cited, 49-58. Nuttonson, following E. H. Walker, makes interesting comparisons of the islands of the Ryukyus. See the remarks on Miyako, Ishigaki, and Irimote, 54-56. For a short and forceful statement of the problem as it applies to Japan, see A report on Japanese natural resources, Tokyo, 1948, 347-59. Many of these remarks apply mutatis mutandis to Okinawa.

3 Nuttonson, as cited, p. 57. Based on B. O. Hughes, A forest policy for the Ryukyu islands. (Food and Natural Resources Department, USCAR), 1951.

4 Okinawan forests, as cited, 5.

423
311

Matsuda
Land Classification

Type of Land	Area in Tsubo	Approx. Acreage Equiv.
Rice (ta)	82,151	67.9
Dry crop land (hatake)	188,306	155.6
House sites (yashiki)	17,056	14.1
Village Owned forest (sanrin)	1,259,104	1040.6
Wild land (genya) a/	376,660	311.3
Village Owned shelter belts, groves	33,654	27.8
Religious sites (haisho)	2,883	2.4
Public building sites	81	b/
Miscellaneous	3,183	2.6
Total	1,963,077	1622.3

a/ Includes village and privately owned, but almost all is privately owned.

b/ Less than 0.1 acre

Source: Ginoza-son township office, Ginoza village, Okinawan Island. Dec. 1951.

137
311

The coniferous forest (shinyōjurin) is along the shore, reaching inland short distances in those areas not given over to cultivation. Pine stands are valuable for typhoon protection. Inland, about half a mile to a mile from shore, the coniferous stands give way to a dense mixed forest of deciduous trees and shrubs. The predominant species in this broadleaved forest (katsuyōjurin) is a live oak, the shii. Ordinarily the shii grows to be quite large, but here in the dense stands its growth is stunted. While not impenetrable, it is difficult to go through these stands once one is off the foot path. Along these paths, there are huts where one may drop in for rest or shelter, charcoal kilns, stacked firewood (maki), and piles of long poles which have been cut and stripped to be carried down the mountain paths to the road for loading in trucks. [485]

The woodlands of this area may be classified, according to use, into two categories: (1) stands, groves, or clumps of trees which provide typhoon and windbreak protection (hoanrin). Shore shelter belts or groves are known as bōchōrin, those inland or on mountain tops as bōfurin. (2) The forests, maintained and used as a resource, for such materials as firewood, lumber, and charcoal.

In Matsuda, trees are used both for protection of houses in the

137 settled area and for protection of the surrounding crops. Around
311 houses, there are common stone fences, bamboo fences and trees.
Stone fences, though solid may be toppled over. Bamboo, or dwarf
[417] bamboo fences, seemingly slight, resist the winds and remain intact
because of their flexible loose weave.

The trees on the ridges of the low lying hills or on high pieces
137 of ground are tall, and sturdy, and jealously protected. The villagers
133 take great pride in them. Today this pride is based on the realization
185 of their effectiveness; in former times, their protection was associated
with the worship of the gods of the sacred grove (utaki). There were
[778] beliefs, which now seem to be dying out, that cutting these trees
would bring bad luck. Many villagers say that Saion in the 18th
[777] century intentionally invented superstitions concerned with the cutting
of the trees in order to save them. Now these trees are no longer in
[173] danger of cutting, even though the penalties of the old beliefs are no
longer feared.

The following short list does not exhaust the kinds of trees and plants found in this area. It is confined to those trees, shrubs, and grasses which are most frequently found and which have the greatest local importance.

824 (1) The Ryukyuan pine (Riukiu-matsu in Japanese, Pinus luchuensis
Mayr). This tree is still one of the commonest sights of the island,
313 even in southern Okinawa. At present, it is a source of firewood,
cheap lumber, and siding. It is not considered good housebuilding material because of termites (shiroari). Pine was used for fishing boats within living memory, but now they are made of much harder woods. In this area, the coniferous groves are along the seashore. The larger stands are not cut. Scrub pine on individually owned wild land may be cut for firewood.

(2) The fukugi (Darcinia spicata Hook.). The fukugi is used around homes and on mountain ridges as a typhoon protection. It is fairly plentiful here and prized as a building material (kenchikuzai). The hard studs, beams and cross beams and the wide plank floors in the older and better houses are often made out of this wood.

(3) The iju (Schima luchuensis Nak.). This tree, common here, is used as a building material and is considered to be better than the Japanese redwood (sugi). It is not regarded as a good firewood.

(4) The inumaki (Podocarpus macrophyllum D. Don). This tree is not well known here, and there are no large specimens. But it is regarded as the best building material when available. Often the large, hard, rough hewn poles which are placed on stones and support the eaves of the older houses are made from this wood.

(5) The shii (Shiia cuspidata). The dense stands of this tree in the village owned forest restrict the size of the specimens, though

313 tion, but the village receives payment, through the township,
476 from the central government for this labor. In November 1951,
the rate was Y80 per day for each male, and Y50 for each female.
[465] Married women do not participate, except to take the place of a
husband who cannot attend. This community project is a continuation of pre-war custom. On the day set aside for this work, the participants are taken part way by truck or bus. A half hour walk over the paths, often leading through dense thickets, brings them to the site selected. Everyone brings his own lunch, perhaps in a little metal box, or merely wrapped in banana leaves. Around noon, the girls take their buckets, go down hill to the stream, and carry up the water for the tea. Weeds and grasses, especially miscanthus and the dwarf bamboo are cleared out from the predominating shii and pine. A shii is known here as the shiigi or shiija. When work begins the area is almost an impenetrable thicket. The grasses and the thick dwarf bamboo have grown up in dense stands among the trees. Only these grasses are cut. Trees are not touched, except for the very young ones in overcrowded spots, or the malformed and dying trees. With the brush and grasses cut, the stand of trees is still dense.

When the undergrowth has been cut down, one can walk through the area. The cuttings, as well as the litter on the forest floor, are not removed. This wise practice keeps the soils at least at their normal productivity. In this area, the relatively low density of population, the scattering of settlement, the large areas of
● [311] forest compared with the cultivated areas have not brought about conditions requiring the removal of forest litter for fertilising fields and for fuel, a practice which creates acute problems in Japan.[9]

The work is supervised by a forestry official living in the
[632] village but an employee of the township. His supervision is nominal, as everyone knows what is to be done and how to do it. Like all officials of a village, he is a friend, neighbor, or relative of those who participate. He checks off the names of those who have reported. On returning from the forest at five in the afternoon, most of the villagers bring back some wood, perhaps a long pole, a bunch of dwarf bamboo, or miscanthus to make an outdoor broom. They are lighthearted as they return single file along the winding paths back to the village.

Pine cones are gathered for their seeds by the co-operative effort of the villagers. The cones are soaked in water so the seeds can be removed more easily. The village office takes the seeds,
[C55] gives them to the township office which sells them to the central government for planting purposes. Once a year, the village receives 10% of the amount of seeds it collected for its own planting purposes.

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[9] A report on Japanese natural resources, as cited, 358.

Every three years, the villagers thin out the dwarf bamboo and other 313
grasses in the pine stands along the coast. Late in December or in 476
early January, there is a community planting of pine seeds.

The tools used in forest work are: the hand sickle (kana), a
bill or hook knife, the tool so familiar in agriculture; an ordinary 412
long knife resembling a butcher knife or a machete (here called a
yamakatana, or "mountain knife"), and a hooked knife on the end of
a long handle (zōringama).

Forest care goes well back into Okinawan history and antedates 313
more recent Japanese methods. This care probably was an obligation
in the old system of land tenure under which villagers had access
to forest lands with the corresponding obligation to replant.

4

An Example of Reclamation

There are cut-over tracts in Matsuda village. The Japanese 185
government, according to local residents, tried to convert these
cleared areas into agricultural land. This land reclamation (kaitaku) 311 ●
began about 1935. The land was cleared of its remaining trees and
shrubs mainly by firing. (Fire has been used in Okinawa, possibly
from early times, in the clearing of land. In 1947 the use of fire
in clearing and the hazards in creating forest fires were pointed [372]
out by observers who blamed carelessness in firing as the cause of
the forest fires in the dry season).[10] Firing was easier and some
nutrients from the ash were available to the poor soils.

In Matsuda, the cleared land was hoed and the rocks were removed.
It had to be hoed deeply to make cultivation possible. The land was [241]
enriched with composts containing horse, pig, and goat manures. The
original plan was to promote a more extensive type of agriculture on
the reclaimed land because it was poorly adapted to the cultivating
methods on the better and more accessible soils. A here-and-there
(yadori type) settlement was planned. The houses were to be [361]
scattered on hillsides, or in the valleys, to provide sufficient
land, admittedly poor, for the settlers to cultivate. The size of
the contemplated holdings precluded hand labor of the intensity
characteristic of the usual agriculture. The use of draft animals, [241]
plows, and harrows was part of the plan.

The war and the disappearance of so many of the draft animals prevented its realization. Before the war, it was intended that each family should have a 3000 tsubo tract (2.45 acres). Today the residents on these lands cultivate only about 1000 tsubo, about the limit of manual cultivation considering the soils and the stone that remains. As a consequence, parts of the area are returning to weeds, grasses, and shrubs.

[10] Okinawa forests, as cited, 7.

wood and lumber for Japanese army uses and for air raid shelters 313
were in demand, (2) the burning in the course of the war, and (3) 727
the intense cutting after the war for firewood and rebuilding.

Okinawan traditions relating to forest care have a positive 313
value and it is worth while to recapitulate them here. Local
old men and antiquarians in Matsuda give credit to Saion who wrote 173
a long treatise on agriculture and is said to have intentionally devised superstitions to save trees. Death or misfortune would come to him who cut the trees, especially those in sacred groves or on the tops of mountains. Some local residents have said that the gods of the mountain are really not of religious inspiration at all, but had their origin in the conscious desire of Saion to save the trees. While there does not seem to be any truth in this assertion, since these deities of the sacred groves and mountain tops reach far back into antiquity, there is no doubt that sacred
groves and houses of the mountain gods saved trees that otherwise [778]
would have been cut down. (In China and Japan, religious shrines
and holy places have also been areas of the preservation of trees). [171]

Present attitudes were summarised by a Matsuda school principal who said that beliefs in mountain gods and in death and mis- [183]
fortune following cutting trees were dying out, and that these old [776]
beliefs had been replaced by awareness of the scientific reasons
for preserving the trees. [777]

In Matsuda, pride in the trees, in the groves that line its hill tops and overlook the narrow valleys and ravines planted to rice and other crops is a conspicuous part of village experience. There are trees along the main road near the town that are said to have been planted in Saion's time under his inspiration.

These favorable traditions are helpful. They do not guarantee the preservation of the forests. Previous experience has shown this. From what may be surmised of the history of Okinawan forests, the destruction of modern times has been correlated with war and the expansion of economic activities. We may speculate, too, that
previous deforestation was slow, inexorable and related to the clear- [311]
ing of accessible stands near settlements, and the extension of these settled areas as they grew. "Most of the accessible primitive forests have been exhausted," Dr. Green wrote in his report to Commodore Perry.[11] The need for fuel increases with population. In China,
Japan, Korea, and Okinawa, the relation of forests, either as a source [161]
for lumber or fuel, to population growth and settlement is a very
intimate one. This is a basic consideration in discussing not only [171]
the "patterns of culture" but the relation of culture to the natural environment in this part of the world.

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[11] Hawks, Perry's expedition to Japan, Vol. II, 35

6

Conclusion

● 311 184 [245] [649] In the comparative study of these villages, certain distinctions are worth summarizing. (1) In the southern villages, which lack forest land, there is much more dependence on the uncultivated wild land (genya) which supports the grasses. (2) The forest, in Matsuda as elsewhere in the north, is a reserve for necessities like firewood, thatch, charcoal and building materials, both for local use and southern trade. (3) The shelter belts and groves have been preserved in the north. (4) Tidewater plantings of shelter belts are needed in the south. Plantings of the Ryukyuan Forestry Agency, under American Civil Administration encouragement, have begun in the south as protection from wind and salt water spray damage. These include the mokumao, the pandanus, the hibiscus (*Albiszia julibrissum* Durazz, in Japanese the nemunoki) and the hirugi (*Brugieria* spp.)[12] (5) Ecologically, the situation is more balanced in the north where a good start seems to have been made in arresting progressive deforestation. (6) This balance, if Matsuda is a representative village, can only be maintained by constant appraisal of the relationships of the forest to agriculture, to the growing population, and to the economic demands to which this leads, unless the wood and timber demands of the island are to be met in large part by imports.

114 648 636 An occupying power like the United States, rich in modern techniques, can do much to improve the life of a small island people. If it is mindful of the history and the present features of the culture, it can suggest improvements without destroying the bases on which the culture rests.

313 114 One of its greatest accomplishments could be an aggressive and continuing program of conservation and afforestation. The present administration, through the Forestry Section of the Food and Natural Resources Department, has started a program which, if permanently pursued, could have far-reaching consequences. An emphasis on selective cutting, conservation, fire control, tidewater plantings, and many other measures could only be a credit to American administrators and foresters as well. The costs, as such things go, would be moderate.

From personal experience in village life, I have no doubt that the co-operation of villagers in all parts of the island could be readily obtained in advancing a large scale afforestation program. The readiness of the people of Matsuda cannot be an exception. These things could be accomplished without an unwieldy administrative apparatus. I have been continually struck with the ability of the Okinawans, with their skill in local organization, to accomplish

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[12] I am indebted to Mr. Richard Varney of the Department of Food and Natural Resources, USCAR, for this information.

necessities of life. Fishermen are more accustomed to dealing in 434
currency transactions and these are more frequent and freer than in 511
the farming village. 184

The economic history of the average Okinawan agricultural vil- [437]
lage from the late 19th century when Japanese control became firm
to the present is largely an account of the fluctuations in rice, 433
sweet potato and sugar cane production. This history is difficult
to reconstruct on a local level because of the destruction of
records and inexact memories. The point is nevertheless worth
making, if only to stress again that these villages are not isolated
rural economies. The general experience seems to have been that [439]
crop acreages have contracted and expanded in response to local
needs and to the demands of trade with Japan.

In the Hanashiro area, to use one example, there is a current 433
interest in rice production because of its high value, and sugar cane
seems to be displacing some sweet potato acreage. Sugar, even though 435
coarse and unrefined, has a market in Japan strong enough to warrant
production for the cash income at the expense of the cheap and plentiful sweet potato.

One of the most significant facts of economic life in these 423
villages has been the maintenance of individual farms and crop variety. 311
Plantation monoculture, subject to international price fluctuations
and often conducive to local impoverishment, has not developed.

Private ownership in land, the inheritance of land within the 423
family system, individual farms, tiny as they are, have undoubtedly 428
been a stabilizing influence on these village economies.

764 The beginning of a funeral procession is announced by a gong in the yard of a village office. The head man and other leaders and elders of the village attend the funeral. The mayor of the township or his representative joins in the procession.

[793] A Buddhist priest (bōsu-san) did not officiate at this funeral. Priests are scarce in rural Okinawa. Most of them were Japanese who returned to Japan after the war. Families can also save by dispensing with the Buddhist service. The participation of Buddhist priests, already nominal before the war, has now in the villages studied, virtually disappeared.

764 431 It is customary at a death to give a ten or twenty yen offering to the family. The money is put in a small envelop with an expression of sympathy written on it. (In Okinawa money is the usual gift at marriage, birthday celebrations, and at death. The gift may be put in a small envelop but it is common also to give a loose bill).

765 [782] [761] Early on the morning following the funeral, the tomb is visited by members of the family. Food offerings of rice, tea, sake, and a flower may be placed in front of the tomb. A charcoal stick is burned. These visits with the offerings and prayers on the following morning are associated with a belief, still held by the old, that the dead person might still be alive and that the pounding of an adult on the wall or the crying of a child might be heard so that the living could be rescued from the tomb. The belief that the person might still be alive and possibly could be heard seems to persist in Hanashiro and Minatogawa. It was not encountered in Matsuda, although it might well exist.

2

Burial Places and the Family System

764 [311] [565] Okinawan tombs have excited the interest of foreigners from the earliest days of European contact. There are no cemeteries in the usual sense of the word, but areas scattered throughout the countryside, usually on the tops of hills, or on the stony sides of mountains, are given over to burial grounds. Tombs are not located on land suitable for agriculture. It has been said that the Japanese forbad using agricultural land for tombs, but the practice in Okinawa seems to antedate these Japanese interferences in the culture of the rural areas. In the interior, the tombs are always on wild (genya) land. But one can also see tombs along the seashore and on offshore rocks. The outstanding exceptions to this are the royal tomb area in Shuri, now largely destroyed, and the large and dramatically placed tombs in the center of Itoman town. In the case of Itoman, it is quite probable that the growing town has surrounded the areas taken as tomb sites.

Of the several types of tombs, the turtleback (kamekokata) is the most famous. It has been variously described by European travellers as

CONCLUSION

The description of village life presented in the preceding pages 128
is not the delineation of an ancient way of life essentially unchanged 178
from the remote past. Neither is it the study of an old way of living
which is now passing away. Rather it is a glimpse of a culture, at
a particular moment in time, which has been changing, sometimes slowly,
sometimes with great rapidity. The theme of inertia and change, developed
in the second chapter, furnishes an opportunity for understanding the
culture in the perspective of history. Even though the changes of the
last decade have been impressive, they are less striking when placed
beside some of the great changes of the past.

This small island, known to Oriental antiquity and to the Western 177
world after the Age of Discovery, is an excellent illustration of the 311 ●
combination of influences from the outside and of the progressive
changes made in the natural environment as a consequence of long human 182
settlement. This theme, imperfectly documented, has repeatedly appeared
in this work in order that the affinities of soil and land conservation
and forest care with social and cultural questions, such as organization
of government, the family system, and economic problems may be recognised.

This idea of a changing culture, in a physical environment of 178
meticulous tillage and of minute subdivision, enables us to see more 182
clearly the inter-relationships of the family system, inheritance, land
tenure, the care and conservation of the land, and the methods of agri- 311
culture. It is the values within the family system that have given content and meaning to the natural resources, to the tiny paddies, the stony sweet potato patches, and the barren wild land. The tombs and the grave sites also find a place in this minute appraisal of the value and the use of land.

This minute knowledge of the land, obvious as it is to observation, 311
is one of the outstanding cultural characteristics of the people. In-
deed this is true of other Oriental peoples as well, even though their 181
preferences have been for the transported soils of the alluvial plains and the deltas. This detailed knowledge of land, of its productivity as guaged by the farmers' patient success in tilling it, is used to build up the system of land classification.

No less striking is the intimate knowledge of small localities. A tiny village may have five or six of these localities, dignified with a name which, in our culture, would be given to a portion of a large city. Every little spot has a name, even though the origins and the circumstances of the naming are lost in hazy memory.

In this use and tillage of land, perhaps the most important com-
parison to be made is that, unlike China, Japan, and Korea, dry land and [171]
upland agriculture is the chief reliance of the people. There are no Yangtze river deltas and no Kanto plains in Okinawa. The care, conservation and use of land have crept up the hillsides over the most settled

311 181 parts of the island, and the small deltas, the tiny alluvial plains, the short and narrow valleys are left to produce what little rice can be grown.

171 369 Okinawa is not Japan and perhaps it is unrewarding to attempt comparisons between the Okinawans and the Japanese. Okinawa is an island whose rural life is but little disturbed by urban development. Only two places, Naha and Shuri, could be classified as small cities. Important places like Nago, Ishikawa, and Yonabaru are only small towns.

Japan is a culture rich in both its rural and its urban life. The investigation of the life of the great metropolitan cities of Japan is more scattered in specialized studies, more casual, perhaps more impressionistic than the study of some of its villages. Japanese and Okinawan rural life have many things in common, though the Japanese experience may now be distinctly different because of the land reform.

But along with the rural village, there are the great cities of Tokyo, Yokohama, Kyoto, Osaka, Kobe, and Nagoya, and these circumstances make an appraisal of Japanese culture even more complex and elusive.

197 Certainly the long cultural ties with Japan have left their impressions on the people of Okinawa. The Japanese language, the Japanese system of education, altered after the war, Japanese tools, and Japanese literature are clear examples of this direct influence. But there are differences too. Adoption is much less common in Okinawa. The Buddhist influence, except for the altars of household Buddhism, is weak. The Okinawans, during the war, seemed less inclined than the Japanese toward fanatical self-sacrifice in behalf of the emperor cult.

157 128 In this work, I have avoided discussing the popular subject of the "psychology" of the people. After a few commonplaces, one embarks on a series of impressions which may or may not have validity and which most certainly would be subject to endless qualification. I have therefore, for the most part, left the characteristics of the people to emerge from the descriptions of their historical experience, their social organization, and their family and community life, trusting that from these details one can form an impression of the way in which a people are living and how they meet the manifold problems which confront them.

156 In my own studies, I have been impressed with the feeling of belonging which seems to be the possession of the individual from infancy until his children lay him to rest in the family tomb. There is also a stability in family life, and this stability does not seem so pivoted, as in our culture, on the continued mutual love and affection of the father and the mother. There also seems to be little stress on personal competition.

The infant as well as the mature adult are conditioned to conformity both by the historical obligations and duties under the family

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778 Although a number of important shrines and worship places are located in the Kawata area, the main shrine is in Taira.

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To this tranquil area the activities of World War II brought a great upheaval. Although the main stream of refugees from the south, following threats of United States troups' invasion, did not reach this northern area, Japanese guerilla forces settled in the hills of Higashi township. This, and the constant warnings from the Japanese of the "terrors" of American occupation, caused the population of all villages to take refuge in the mountains, carrying along what few possessions they could, including livestock. Families were separated and individuals lived in constant fear of soldiers from both sides. Nightly excursions to the fields to harvest whatever could be found helped to maintain a meager diet. It is characteristic of the stresses of this period that among the children of central Taira only one was born in 1945.

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The war ended for Taira people when American troops had cleared the northern areas of Japanese troops. In this action several villages were destroyed, among them Taira. The present economic struggle of Higashi township, an area which was always handicapped by lack of farmland and poor soil, is partly due to the war. On the other hand, the demand for lumber for an island-wide reconstruction program lent a temporary boom to the economy. In the process, however, forests
[185] which had been heavily cut before the war fell prey to rapid and
poorly planned cutting. At present the whole township is in the throes of economic readjustment.

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In the past 50 years, Taira, like the rest of Okinawa, has sent some of its overflow of population to various areas in the world, including Japan, and especially to the industrial areas of Kobe and Osaka, Saipan, and Brazil. At least five of the families in central Taira lived either in Japan or the Pacific Islands and returned shortly after World War II. Emigrants to Brazil have stayed with the exception of one prominent person who returned to Taira several years before the war. Some of the families lived as many as 18 or 20 years abroad, and several children in the study were born in Japan and returned to the village as infants. Among the villagers are many who have served in the Japanese Army in Asia or in the South Seas.

The repatriation of these families does not seem to have caused any serious disturbances to the village, since many people were killed during the war and several families moved to the city. An exodus to the
● [311] outlying areas of the village also provided room for returnees, so, al-
though rice land is scarce, there is still some uncultivated farmland, admittedly mostly of poor quality.

080 The community is dispersed. In the outlying parts, as far as 2 miles

tion, a frame wood building, and the main store. On the eastern end of 36
the village the road opens into a little square in front of the simple, open prayer house with a small concrete shrine in back, housing three sacred stones. Beyond these is the township office crowned by a mighty pine tree of tremendous and symmetric proportions, acclaimed by Taira people to be the oldest existing pine in Okinawa. Across from the office are the post office and the dispensary.

Closer inspection of the village shows former house sites which were 361
not rebuilt. Some still have empty concrete shells or single concrete 727
walls and abandoned pigsties or storage sheds. Some of the vacant lots [311]
are used as potato fields, others as play areas, the favorite being a large house lot surrounded by a concrete wall, near the main store.

Houses are set back a short distance from the roads and paths, and 361
most face south. In spite of the hedges and trees, the house is easily ac- 351
cessible from the street—its orientation is therefore toward the community as a whole and, as will be seen later, open to visitors who can enter freely without going through winding garden paths and knocking on doors or entering through long corridors and passages. Each house lot is small, ranging from 1300 to 6050 square feet. Houses are [571]
set so close to each other that neighborly conversations from one to the other can be conducted without leaving one's premises. Although some privacy is attained by the hibiscus hedges and fences, few secrets can be kept from neighbors.

There are several focal areas where people frequently meet and inter- 361
act. The main store is a geographical center. Its two bulletin boards [203]
make it a natural congregating point. The banyan tree, overshadow- [139]
ing the village office and the lower water tank, is another such place, and on any day of the year scores of children can be found on or under it. In prewar times it was flanked by important structures, but now the empty lots, which are adjacent, form a green which is used on good days for village meetings.

South of this green, and close to the water, stands the old warehouse, [251]
a concrete structure with tile roof which once served as a storage center [344]
for agricultural products shipped south by boat; now it serves as a village meeting playground, especially on rainy days. The open space around it, bordering on the sea wall, is also used as a play area and as a gathering place for young adults. Here people prepare firewood for sale and stack it to be picked up by the village truck. Houses once stood near the 10-foot sea wall but were not rebuilt after the war.

To the north of the store lies the upper water tank. Until several 312
standing faucets were installed in 1955, this used to be another place 365
where people met frequently. Water is diverted from a stream a mile

512 is more likely that the majority of adults have to be satisfied with six
513 and a half hours.

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Chapter 3

Basic Economy

INTRODUCTION

241 Taira depends on its fields and forests for a living. Rice and the sweet
433 potato are the principle staple crops; wheat, beans, and vegetables are
additional subsistence crops. Firewood and building materials, sugar,
pineapple, and silk are main sources of cash. Tea is raised for home
consumption.

● 311 Since the few rivers around Taira are short and the valleys narrow,
[243] the area available for wet rice cultivation is limited. Farm land for
sweet potatoes is also not too abundant in this mountainous region and
[244] is located either on the gently sloped hills or on a few plateaus between
valleys. Here and there it rises on skillfully terraced steps along the
steep sides of mountains.

311 The size of land holdings and the quality of soil partly determine
423 whether a family is able to grow additional cash crops or merely sub-
241 sist. The average holding for each family is about 5 acres of rice land
and 6 acres of other farming land. Yet it is important to note that the
range and quality of this land vary widely. Some families own only
[433] 1¼ acres of rice land and an acre of other farm land, while others own
as much as 14 acres of rice land and 12 acres of other farm land; good
rice paddies produce three times the quantity of poor ones and are wet
enough to allow for two crops per year. Of the 141 families questioned,
[511] only 15 grew enough rice to be self-sufficient; 123 had to buy extra
[433] rice, and only two families raised a surplus for sale. All families grew
enough vegetables for home use, and only 18 bought sweet potatoes.
Sixty families grew a surplus of vegetables and 16 a surplus of sweet
potatoes.

CHAPTER I: GEOGRAPHY

F. R. Pitts

131 Location Okinawa is a longish island, lying about halfway between Formosa and the southern tip of Kyushu. Together with clusters of islands lying both to the east and west, it forms the political unit known as Okinawa Guntō.

133 Along the axis of Okinawa, which trends from southwest to northeast, there is a fairly simple division into a plateau-and-mountain northern half, a central plateau area, and a low rolling southern knob. The Motobu peninsula juts westward from the northern, or Kunigami, half and forms a distinctive area. Between the Kunigami mountains and the peaks of Motobu lies the ricebowl of Okinawa---the Haneji lowland.

311 Arable Land In general it can be said that the farm population increases as
241 one proceeds south. Map 2, showing the arable land under cultivation as a percentage of the total land area, illustrates this.[1]

Farms in the mountain and plateau north are found in incised V-shaped valleys. Water is plentiful, and rice paddies cover the valley floor. Villages hug the edges of the flat land, and incredibly small sweet-potato terraces rise
[137] up the valley's edge. Atop the plateau one finds only silence, and a dense growth of trees and bamboo. Many of the people in the valleys are part-time
[132] foresters. The Motobu mountains guard from the frequent typhoons little settlements famed for growing the indigo plant and pineapples. The peninsula's north shore is a fertile but ever-narrowing extension of the Haneji lowland.

In the central plateau area---Nakagami---sweet-potato fields compete with scrubby forest for space on the plateau. Where sufficient water is available, rice fields cover the tiny valley floors and the low-lying coastal fringes. The triangular southern end of the island is known as Shimajiri in
[134] popular terminology. Shimajiri is blessed with the greatest concentration of
[132] fertile arable land on Okinawa. But the blessing is somewhat reduced by greater exposure to typhoons and a chronic water shortage. Sweet potatoes and sugar cane rank first among crops here.

311 Riceland Okinawans prefer to eat rice rather than sweet potatoes whenever
243 possible. It is a paradox, however, that areas of greatest farm
[262] population grow the least rice. The thinly populated north has the greatest amount of riceland. Map 3 charts the distribution of riceland---or flooded fields---on Okinawa. Even in the southern 'son' of Yonagusuku and Kanegusuku flooded fields often contain the mat rush rather than rice. It is a good cash crop, and is sturdier than rice when typhoons roar through the islands.

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[128] [1] The figures upon which the maps in this section and the population section are based are found in Appendix A. The figures for Japan and Kagoshima-ken are given for comparative purposes. Of all the prefectures in Japan, Kagoshima most nearly resembles Okinawa in climate and emphasis upon sweet potatoes as a staple food.

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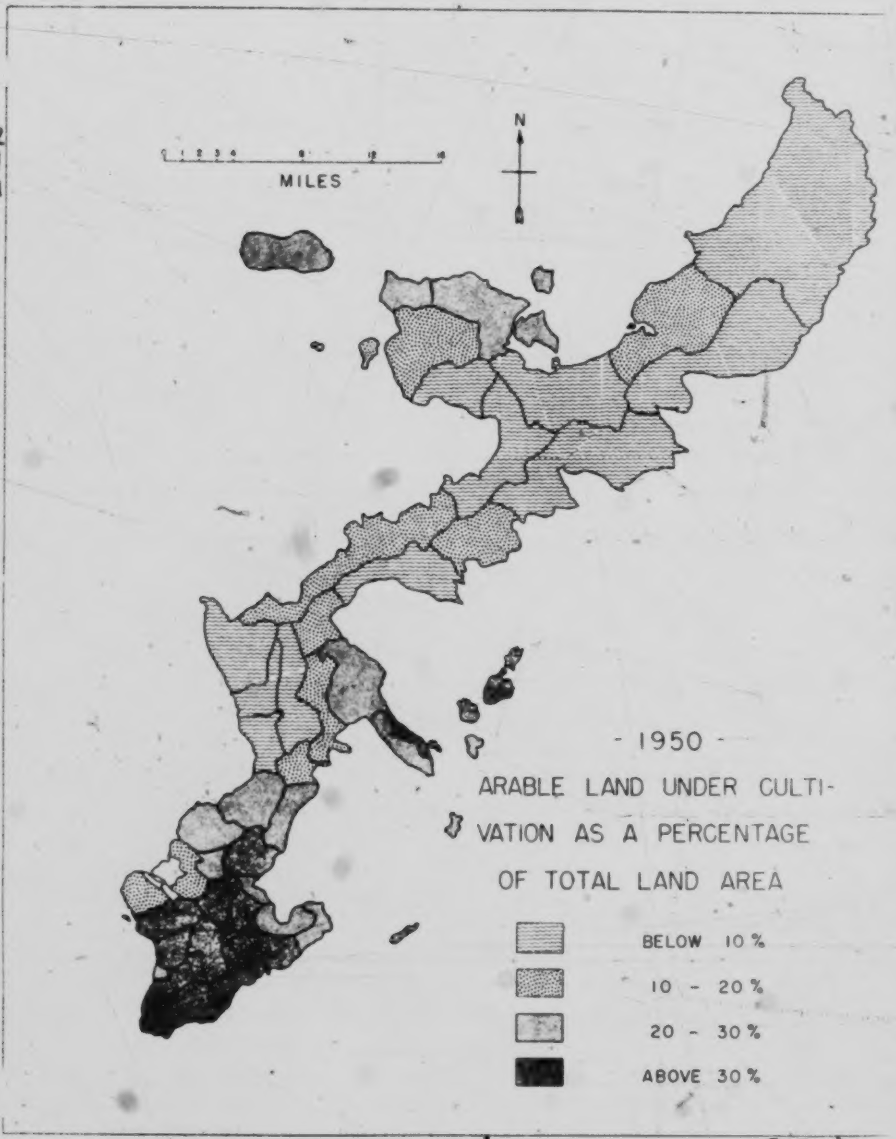
N
0 1 2 3 4 8 12 16
MILES
- 1950 -
ARABLE LAND UNDER CULTIVATION AS A PERCENTAGE OF TOTAL LAND AREA
BELOW 10 %
10 - 20 %
20 - 30 %
ABOVE 30 %

Map 2[1]

[P 2-A)

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[1] [See pages 222-224 for data upon which this map was based--Analyst]

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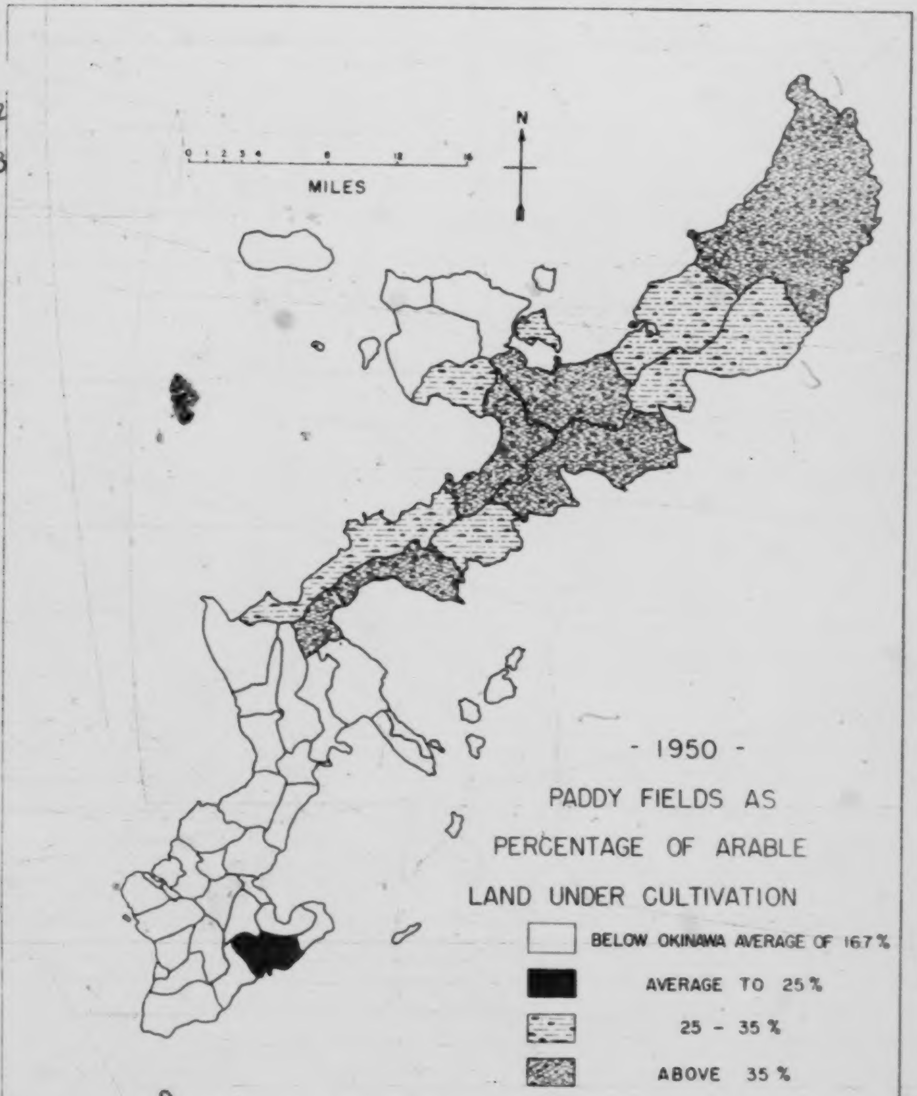
0 1 2 3 4 8 12 16
MILES
N
- 1950 -
PADDY FIELDS AS PERCENTAGE OF ARABLE LAND UNDER CULTIVATION
☐ BELOW OKINAWA AVERAGE OF 16.7 %
■ AVERAGE TO 25 %
▤ 25 - 35 %
▩ ABOVE 35 %

Map 3[1]

[P 2-B]

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[1] [See pages 222-224 for data upon which this map was based--Analyst]

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175 Before the war Okinawa imported half its soybean requirements. By
241 early 1951 the prewar acreage had been cut by half.[1] This resulted in the
439 necessity to import soy sauce tax-free from Japan, which brought an ineffec-
249 tive protest from the Legislature early in 1954. 'Miso' paste, which is made
252 of soybeans when they are available, is now made also of corn, broad beans,
kidney beans, and various other legumes.

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241 As early as 1946 the occupation forces reported:
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> Rapid restoration of Okinawa's prewar agriculture is hampered chiefly by an arable land shortage induced by military requirements in the southern half of the island, where roughly 30,000 acres are devoted to military use. War damage and migration from combat and, later, base development areas seriously disrupted agrarian economy and early planning was delayed pending disposition of farm tracts affected by military expansion.[2]

That loss of both upland dry fields and paddy land was affected is shown by the following:[3] (figures are in 1,000's of acres)

Table II

Type of Land	1940 Acreage	1950 Acreage	% of 1940
Cultivated land	103.8	67.2	65%
Paddy land	11.5	9.6	83%
Upland fields	92.3	57.6	62%

Even more significant is a comparison of the 1940-1950 figures with those for 1904, which show the situation which existed before any Japanese military installations were built.

Table III[4]

Year	Acres Paddy Land	Acres Dry Fields	Total Arable Acres
1904	15,779.1	93,952.6	109,731.7
1940	11,527.25	82,273.86	93,801.11
1950	9,559.56	57,610.16	67,169.72

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[1] Ryukyu Islands Economic Statistics Bulletin, no. 10, January-March, 1951.

[2] Summation...op. cit., p. 26.

[3] Ryukyu...., p. 13.

[4] The 1904 data are from Summary of the Land Adjustment in Okinawa Prefecture, Tokyo, 1904. The 1940 and 1950 figures are from the reverse side of the large map, Okinawa shotō shōzu.

In all cases, Kunigami seems to have held up the best, and Nakagami 178
has fared the worst. Again this reflects the military interest of both the 175
Japanese and the Americans. The comparison of 1904 acreage with that of 1950 241
in each of the three areas is shown below: 727
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Table IV

Area	1904 Acreage		1950 Acreage		% Decrease	
	Paddy	Dry	Paddy	Dry	Paddy	Dry
Kunigami	6,530.5	28,398.5	5,463.0	20,773.8	16%	27%
Nakagami	3,861.2	34,176.1	1,675.1	14,932.0	57%	56%
Shimajiri	5,370.3	30,978.7	2,443.9	21,904.4	55%	29%
Okinawa Island[1]	15,779.1	93,952.6	9,589.0	57,610.2	39%	39%

Chronology of Changes in Farming Technique It is impossible to give for the 178
whole of Okinawa a schedule showing just when each technical innovation was introduced. Some parts of Shimajiri and Nakagami were in advance of the rest of the island; conversely, one finds on the outer islands practices still carried on that the more progressive areas abandoned more than two decades ago. 241

In Yamada the transplanting of rice was originally done by scattering 178
(bara'ii) of the shoots. Shortly before 1930 this method was replaced by 243
planting in rows, with a string to mark the distance. The spaces were filled in by planting while walking backwards. About 1950 people started transplanting while moving forward. This has been replaced in part---at least in areas where the mud is firm and clayey---by the planting frame, the 'waku'.

Farmers kept the harvested rice in conical stacks (majin) several feet high. The bundles (tabai) had the heads facing inward to prevent attack by
rats. The number of these stacks was indicative of the farmer's prestige in [554]
the community. The sheaves were removed from the bottom layer always, and only when rice was needed for food.

Removal of the grain from the stalk was accomplished by the kūrashijii. 178
This was a pair of bamboo tongs held in the right hand, while the sheaf was 243
drawn through the tongs with the left hand. When the new variety of rice was 412
introduced, use of the kanabā became common. This iron-comb-like device, through which the sheaves were drawn one at a time, can still be found in use on the isle of Sesoko, off the Motobu peninsula. It apparently did not find

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[1] The discrepancy in the 1904 totals for Okinawa Island and grand totals for the three division of the island is accounted for by 17.1 acres of paddy land and 256.7 acres of dry fields in Naha, and 142.6 acres of dry fields in Shuri.

swiss chard for pig feed, as well as the greater availability of lantana bushes 178
for livestock feed. The following table compares the 1931 figures with those 727
for 1952: 231

Table VI

Livestock Type	1931	1952	1952 as % of 1931
Cattle	41	229	558.0%
Horses	1,676	74	4.4%
Swine	1,774	2,490	140.0%
Goats	4,217	1,400	33.3%

The "great rabbit boom" is often spoken of by farmers in an amusing 175
vein. In the winter of 1946-1947 rabbits assumed the form of currency, and in 231
a mad fever people bought rabbits and sold them, never realizing their true
value. A Nanahan farmer related: [43]

> I hitched a ride on a truck, and went up to the Katchin peninsula. There I bought a rabbit for ¥600. I sold it the next day to B. for ¥1200. He resold it for ¥700 profit to a Gisshi farmer who was waiting to buy one. Then I went up again, stayed overnight, and sold the new rabbit for ¥1000 profit. Again and again I went, and finally amassed ¥5000 in profits. With these rabbit profits I bought what I thought was a pregnant goat for ¥7000. It wasn't pregnant, and I had to sell it for ¥3000, taking a loss. But then I bought a pig from B. for ¥2500 and sold it to 'One-armed K' for ¥3000.
>
> In Tsukazan, which was the center of the rabbit trade in this area, a man sold all of his land to invest in rabbits, but he lost everything on the deal.

2. Land Use

The basic pattern of land use has been described in Glacken's Okinawan 311 ●
Village Studies (SIRI Report No. 4), and in Nuttonson, Ecological Crop Geography 241
and Field Practices of the Ryukyu Islands, Natural Vegetation of the Ryukyus, and Agro-Climatic Analogues in the Northern Hemisphere. Although agriculture is not quite as intensive nor yields so high as in Japan, still much inter-cropping, double-cropped and rotation of crops is carried on. Because sugar cane takes a year or more to mature, various crops such as kidney beans, giant radish, cucumbers, broad beans, soy beans and mustard cabbage are interplanted with the cane. They mature and are harvested before the cane grows too tall and cuts off the sunlight. Sugar cane is rotated in a two-crop cycle of cane and sweet potatoes; or it is rotated with soybeans and sweet potato in a three-crop cycle. Very rarely is cane replanted in a field which has just produced a crop. In this way the farmers hope to diminish the damage done by worms and insects.

241 **Yields Per Acre** Because Okinawa is a sub-tropical country, crops can be grown
311 the year around. Hence the low productivity of a land sub-
312 ject to natural disaster such as drought and typhoons is somewhat compensated
for. In the limestone areas of Shimajiri ground water is scarce except after
[137] fairly heavy rains. Nanahan has nine small ponds, or kumui, where people wash
clothes and sweet potatoes and in which grows the water convolvulus, or
unchēbā. Farmers say that if a drought lasts three months, crops do not yield
[132] at all. All remember the great drought of 1895 (Meiji 28-nen) when no rain
fell for seven or eight months. Even wells dug in river bottoms dried up. The
23 households of Nanahan at present have eight small wells and one large community
well which was dug in 1948. Little ditches on the hillsides lead rainwater
to the rice paddies, and are fixed so that the water can be directed into
wells. If a paddy field is near the farmer's house, a drainage ditch is dug
to it for the disposal of used household water which is considered to contribute
to a field's fertility. Tables VII and VIII show the yield of crops in
Okianwan and American terms.

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Table VII

Crop	Yield per tan[1]	Bushels per acre[2]
Summer rice	1.10 koku	41.1 bushels brown rice
Winter rice	1.15 koku	43.3 bushels brown rice
Upland rice	.72 koku	26.9 bushels brown rice
Common barley	.51 koku	10.4 bushels
Wheat	.59 koku	12.1 bushels
Naked barley	.52 koku	10.6 bushels
Millet	.38 koku	7.85 bushels
Common European millet	.40 koku	8.17 bushels
Soybeans	.70 koku	14.3 bushels
Green peas	.55 koku	11.3 bushels
Broad beans	.71 koku	14.6 bushels
Kidney beans	.71 koku	14.6 bushels
Peanuts	.83 koku	17.2 bushels

Table VIII

Crop	Yield per tan	Tons per acre
Sweet potatoes	1,762 kin	47.6
Irish potatoes	2,176	58.8
Cabbage	3,540	96.1
Other leafy vegetables	1,669	45.1
Giant radish	2,677	72.2
Carrots	2,439	65.85
Pumpkins	2,090	56.5

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[1] Ryūkyū tōkei hōkoku, Vol. 3, No. 3, p. 1, 1953 (data for Okinawa Guntō).

[2] Converted according to standard indices, as given in SCAP, Natural Resources Section, Report No. 143, Tokyo, 1951.

Table VIII, cont'd.

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Crop	Yield per tan	Tons per acre
Cucumbers	1,570	42.4
Wax Melon	1,859	50.2
Tomatoes	2,789	75.5
Watermelons	1,557	42.0
'I' rush ('Bingo-i')	1,411	38.1
'I' sedge ('Shichitō-i')	1,715	46.3
Tea	197	5.32
Mandarin orange ('mikan')	1,183	31.95
Edible banana	1,629	44.0
Green manure crops	2,994	87.5
Sugar cane (cane weight)[1]	9,000	243.0

Use of Grass, Trees and Brush Southern Okinawa looks barren to the American 311 observer---few trees break the skyline and great fields of long grass cover the hillsides. The comment heard most often is, "Why don't the Okinawans plow up the grass and plant crops, instead of letting all that land go to waste?" The only proper and truthful answer to 311 this query, of course, is that the grass is utilized to the full and that none 824 "goes to waste".

The "ubiquitous miscanthus" referred to by Glacken actually comprises [137] many grasses, chief among which are 'susuku', 'kaya', and one known by the Okinawan name nā'ichū. 'Susuki' is used mainly for the making of brooms, which occurs in December after the flowering of this grass has turned the countryside from deep green to a cloudy whiteness. 'Kaya' is used mainly for the thatching of roofs, but is also fed to livestock. Among other plants of the wild land, or 'genya', are the 'mogusa' or fūchibā, used for moxibustion and as a vegetable in soups; the hirahāgusa, used to cure leech bites; and the warabinufūnii, or edible bracken fern.

The Japanese butter-bur is found in the 'genya', and is utilized as a [276] tobacco substitute in hard times, and occasionally as food. The flowering ginger, or sannin, furnishes leaves for wrapping rice cakes, and fiber for the tying of bundles of sugar cane. The leaf of the inedible potato or m-bashi (Japanese, 'kuwazu-imo') was used by very poor people before the war as a wrapper for 'miso' paste, which they peddled throughout the countryside. The plant is still used to stop the bleeding of wounds. The lantana---known in Hawaii as "haole-koa"---furnished poles for house roofs, leaves for fodder, and beans for tea during famines. Numerous other grasses and herbs are used by the older generation for medicinal purposes, as can be seen by perusal of Tawada's excellent book, Okinawa Yakuyō Shokubutsu Yakkō, 2nd edition, Naha, 1951.

Almost all trees, which in Shimajiri means essentially those surrounding the houses, are used in some way above and beyond their major function as windbreaks in time of typhoons. The leaves of the yūna tree are a native

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[1] This information is from the Kochinda-son Office.

The leaves of the *yūna* tree are a native
311 substitute for toilet paper, and are still used in some villages, though people
824 deny that the practice continues. When pressed they may intimate that so-and-
[514] so, "the poor family over the hill", retains the practice. Banyan trees fur-
nish leaves for green manure, as do many other varieties. Before the war many
[178] people grew *kuroki* for eventual use in the making of samisens. The top of the
[534] tree was cut when young so that it would become stubby and thick. The neigh-
boring village of Tsukazan boasts of a samisen-maker whose fame has taken him
to Naha. The 'kusunoki' tree is considered to be the best tree to plant near
the home, for it discourages termites.

241 **Fertilizers** Okinawan farmers in most areas utilize the traditional night soil
and green manures, as well as the modern synthetic fertilizers.
[514] Almost every house has two toilets. The one not in use is utilized as a
night-soil decay pit. Pig manure is mixed with the human excreta, water added,
[237] and the whole let set for about a fortnight before use on the fields. Use of
animal manure in the paddies was abandoned with the introduction of the new
variety of rice. Animal manure produced good heads on the old variety but makes
heavy stalks only on the new.

241 Green manure is extensively used as a plant nutrient in the paddy
824 fields. Indeed, some paddies in winter are devoted to the raising of green
manure, which is plowed under before spring planting. Outer leaves of cabbage
are fed to goats to become manure for the dry fields, or the leaves are
trampled into the mud of the paddy to decay. Thistles, 'kuwazu-imo' leaves,
and tree leaves of the *yūna* and banyan are only a few of the many types of
green manure. Compost, or 'taihi', is made for the dry fields and some paddies
by mixing animal manure with 'genya' grasses, rice straw, and other plant re-
mains. Before the war, compost was not used for vegetables, because it would
cause a shortage in the amount available for the cane fields. Nowadays com-
post is more available, and many vegetables assume huge proportions. One
Nanahan farmer produced a wax melon weighting 97 'kin', or 128 pounds.

241 Commercial fertilizers available to the farmers include ammonium sulphate ('ryusan ammoniya', 'ryūan'), synthesized fertilizer ('kasei hiryo'), ammonium nitrate ('ryusan kari'), nitrogen-lime ('sekkai chisso'), urea ('nyōso'), potassium chloride ('enkakari'), and superphosphate of lime ('Karinsan sekkai'). Ammonium sulphate is preferred for sugar cane. During the last four or five years the Agricultural Federation ('Nōren') in Naha has enforced a tie-in sale so that when a farmer buys two sacks of ammonium sulphate, he must also buy one sack of superphosphate of lime. Farmers in Tomoyose quite often dispose of the latter by dumping it beside the road, as they believe that it is not good for the soil found on their farms. One enterprising Nanahan farmer, who for several years was a member of the Kochinda-son agricultural committee, enquires about the cast-off fertilizer, and when he finds it he uses it to good effect. When he was interviewed concerning this, he expressed anger at what he considered the backwardness of his neighbors.

[177] Okinawans were first introduced to chemical fertilizer in the mid-twenties, when a black fertilizer appeared. This was later replaced by the various white products, which since some time before the war have been supplemented by soybean waste when available.

mean the same thing, village, although the term 'aza' tends to be geographical 621 in connotation whereas 'ku' refers more to the political community. Official land maps use the designation 'aza' and the same term is used for one's postal address. Conversely, the 'koseki' (household registry) kept in the township office is labelled as the 'koseki' of a certain 'ku', and the political head or mayor of a village is referred to as the 'kuchō' ('ku' leader or head). The villagers never use the term 'ku' in referring to their village; instead the terms 'aza', *mura*, or 'buraku' are used. The township of Kanegusuku-son located in southern Okinawa approximately three miles south of Naha on the west coast is subdivided into eight villages or 'aza', each of these comprising a separate settlement surrounded by its fields.

Every 'aza' consists of a number of *haru* (cognate to the Japanese hara) which best translates as "field". Kanegusuku, one of the eight villages of Kanegusuku-son and the one from which it takes its name, consists of eight *haru*, though the number in a given village is completely arbitrary. These *haru* or fields are local designations for the various areas of a village and are well known to all the villagers. The *haru* names are fairly similar from village 621 to village throughout Okinawa though occasionally local geographical features 103 or place names, particularly those of streams, are used. Names like *wii baru* (upper field), *agari baru* (east field), *iri baru* (west field), *kushi baru* (back field), *mee baru* (front field), *shicha baru* (lower field) are found in nearly every village. It is interesting to note that the names north field and south field rarely occur, and where they do occur, the author suspects that they have been put in use quite recently, for in the old, typical Okinawan village all of the houses face south, and the field names are usually ordered around this orientation. Thus, *mee baru* (front field) is usually south of the village while *kushi baru* (back field) is usually on the north side. This carries over into the household naming system (*yago*) employed by the villagers to designate each of the house lots within the settlement.

Each *haru* is broken into many small parcels or plots of land. On the 621 village land maps every plot is assigned to one of six categories---house or 311 building land, irrigated land, dry farm land, grass land, forest land, and miscellaneous, including tomb land. Each plot is also given a number on the [423] land maps and in the land registry ('tochi daichō') for the purpose of identification, though oftentimes the villagers refer to them by local names.

2. Political Organization[1]

There are three levels of government (exclusive of military government) 642 existing on Okinawa today---the central government (Government of the Ryukyu [631] Islands), municipal governments ('shi-chō-son'), and 'ku' (ward or village) governments. The structure of government is pyramidal, there is a hierarchial chain of command, and each echelon of government exceeds in authority the unit immediately below it. There is no allocation of rights and powers as exists among the various national, state, and local segments of American government, since the state operates as a highly-organized and heavily centralized unitary whole. Variation in the form and function of local government from one area to another is slight. Individuals appear to play but a small role in this

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[1] A major part of the information presented in this chapter derives from the 101 author's study in the township of Kanegusuku-son and particularly in one of its villages, Kanegusuku-ku. This has been supplemented by data gathered in briefer studies in other parts of Okinawa.

allotment system was now entered in the newly-created land registries as the 175
property of the household head. In the past inheritance of the position of 648
household head by the first son had been largely a matter of status succes- 177
sion involving leadership of the family and certain ceremonial obligations.
Property succession had not been an important factor, for the private 423
property of the family had usually amounted to no more than the family
house and lot. Under the old land allotment system there was always land 177
available for younger sons who set up independent houses, but under Japanese 423
law the bulk of the family property was inherited by the first son. What had 428
been the function of the community in the past now became the responsibility 592
of the family, and since family holdings were usually small, the younger sons
were often landless. Informants stated that a father will usually do every-
thing possible to provide his younger sons with land, but he cannot do this
if it means jeopardizing the resources of the house. Continuation of the
family line for the purpose of continuity in worshipping the ancestors is
the chief responsibility incumbent on the household head, and in the rural
areas the land provides the major support for the house. With the rise in [166]
population there developed an increasing trend for younger sons to emigrate
from the rural areas in search of land or jobs elsewhere. The end result [602]
was a considerable weakening of family and especially kin group ties and a [621]
rapid decline in the communal character of the rural villages.

Though the creation of private property made possible the sale, pur- 175
chase, and rental of land, landlordism never gained a foothold on Okinawa. 423
Undoubtedly this is primarily due to the recency of private property and the 427
lack of time for large accumulations of land to be made. It is also in part
due to a lack of capital in the rural areas; most capital on Okinawa after [471]
the annexation and before World War II was confined to the hands of Japanese
businessmen and members of the former upper classes who seemed disinclined to
invest in land. Likewise the official Japanese attitude toward Okinawa was [648]
to regard it as a rather backward part of Japan not to be exploited as a
colonial dependency as in the case of Formosa and Korea. Glacken has sug-
gested that the heavy fragmentation of the typical Okinawan farm would be an [171]
obstacle to its sale; yet, the Chinese farmland is also highly fragmented
and landlordism has been common there for centuries.[1]

After the abolition of the communal allotment system taxes were ex- 175
tended to cover all categories of land whereas previously they had been ap- 423
plied only to arable land; however, government income from land taxes sharply 651
declined, as the moderate levies of the Japanese administration were con-
siderably below those of the Okinawan monarchy. Despite this reduction in [311]
tax load there has been a steady decline in the amount of land cultivated
since the termination of the old land system; this is clearly shown in Tables
III and IV in Chapter III, Agricultural History, Land Use and Diet.

3. World War II and the American Occupation

During World War II Okinawa became the scene of one of the most vio- 175 727
lent battles of modern times. The entire island was turned into a combat

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[1] Glacken, 1951, p. 160.

4. A Comparison of Land Tenure in Two Rural Villages: Kanegusuku and Kitazato

621 Kanegusuku The village of Kanegusuku is located in the southwestern corner of Kanegusuku-son approximately three miles due south of [361] Naha on the west coast, and it is immediately north of the town of Itoman. As is typical of the old Okinawan villages it is situated on high ground with all of its houses facing in a southerly direction. Aside from a detached cluster of eleven houses, the village houses are close together in [121] a contiguous settlement. The village was selected for study because of its infrequent contact with Americans, relative lack of war damage, and a reputed antiquity and conservatism. As of December, 1953, the population was 507 persons forming 108 families occupying 103 houses. The present population is said to be about the same as before the war despite a 20% loss of life during the battle; this loss has been made up by repatriates from overseas and immigrants from other areas of Okinawa. The repatriates and some of the immigrants either had formerly resided in the village or regarded it as their ancestral home. There are nine families who were native to some other part of Okinawa before the war and have no previous connections with the village. The majority of the families have been in this village for [592] many generations. There are approximately five persons in each household, which usually consists of a nuclear family, husband and wife and their children; but the composition of a number of households has been changed due to wartime losses.

Socially the village is segmented into eight lineages which con- [613] stitute 92% of the total population; the remaining 8% is made up of unrelated families new to the village since the end of the war. One lineage includes nearly 61% of the village in its membership. Each of these lineages [582] is related to lineages in other villages. Approximately 66% of the village marriages have been within the village, and nearly 50% of the marriages have been between persons of the same kin group. Thus, the composition of the village is fairly homogeneous, and both the community and the kin groups are strong cohesive units.

621 463 241 Occupation 98 of the 103 houses are engaged full time in farming; the household heads of the five remaining houses are employed outside the village in non-agricultural pursuits although all participate in some part-time farming. In addition to these five there were approximately fifteen young men, not household heads, who also worked outside. Most of these commuted daily to the greater Naha area where they were engaged in military employment or construction work. For the majority of villagers farming was the sole occupation.

621 311 Arable Land Over 66% of the total area of this village is under cultivation, and about 38% of the cultivated land is in irrigated fields. [434] The chief sources of income derive from rice and mats made from a sedge which is grown in an irrigated field. In terms of the average amount of [136] arable land per household Kanegusuku is somewhat better off than the average for Okinawa: 1514.2 'tsubo' for Kanegusuku as compared with 1037.6 'tsubo' for Okinawa.

[Kanegusuku]

Non-cultivated land, however, is equally important to the average 621
farm household in providing fuel, thatching, green manure, and many other [311]
necessities.

Land Holdings A breakdown of the 103 houses of Kanegusuku shows 621
that 97 own land; 6 houses own no land of any type. Of the 103 houses, 56 423
rent land, and 6 of these rent all the land which they use. The remain- 427
ing 50 own some land and rent some land. The figures are somewhat misleading, as included among the renters are those who rent only house lots; also included are some houses which have more than enough land for their own needs, but have rented plots contiguous to their main plots and in turn rent out their inaccessible plots to others.

In terms of total land per household 60% possess one or more acres 621
of land which includes house lots, grass land, and forest in addition to 423
cultivated fields. Nearly 73% of the village houses possess three-quarters of an acre or more of land which might arbitrarily be taken as the minimum necessary for mere existence, since farmers say that from 1000 to 2000 'tsubo' (1224 'tsubo' equal one acre) are needed for the average family. This leaves 27% of the village or exactly 28 houses with insufficient land for their needs. An investigation revealed that 13 of these 28 "have-not" houses were new to the village since the war. This group includes former residents of other Okinawan communities as well as repatriate families, of which 4 can be classed as having insufficient land. Three of these 28 houses without sufficient land were headed by widows, and two of these significantly were women who were not residents of the village, so that they were without close relatives in the village to help them. One person, the sole occupant of his house, was mentally unfit to take care of his lands and was helped by relatives. The remaining 11 of these 28 houses were headed by persons who were old residents of the village, but of these 9 were houses headed by younger sons who had established independent branch houses since the end of the war. Thus, out of a total of 28 landless and virtually landless houses, only two
were headed by first sons who were native to the village. Although this [427]
group constitutes but 27% of the houses, it rents 51% of all the land rented by villagers.

Fields There are on the average 11 plots of land per household [311]
in Kanegusuku; of these 6 are cultivated fields while the remainder are in
grass land, house lot, and forest or wood land. The average rice field is [241]
a little over a quarter of an acre in size, whereas the average dry field is about one-sixth of an acre in size.

Owners The land records list 160 landowners in Kanegusuku; 146 of these now reside in the village and 14 are listed as absent. Since there are but 103 houses in the village, a number of houses have more than one
landowner. This is in part a result of the war, which broke up a number of [362]
families by deaths and also caused a severe housing shortage; consequently, there is some doubling up in a number of houses. Another factor is that in the land-rich houses (comparatively speaking) a father often has set aside some land for his younger sons and has entered this land in their names even though they are still quite young.

[Kitazato]

175 621 727 It is said that the division of the village cut across family lines and that the motivating factor in a household's choice of one site over another was the location of their remaining landholdings on the periphery of the village. Another factor was the presence of relatives in neighboring villages from whom they might secure land for rental. Thus, Kijikina is largely made up of households which have their lands on that side of the field or have relatives in neighboring Furushima; the Hama people mostly own the land at the north side of the field.

175 621 [249] [434] [235] [439] The Pre-war Village Prior to the war the village was, according to 'son' officials, a very prosperous community and a great economic asset to the 'son'. It possessed nearly 173 acres in arable land, most of which was flat or gently rolling. The soil was well suited to sugar cane which was the chief source of income for the village; cattle-raising for export to Japan provided an additional source of income.

[360] Unlike Kanegusuku the lineages were said to be rather weak in Kitazato; there were a number of different kin groups, and no one of these was dominant. The houses of the village were not tightly nucleated like those of the typical Okinawan village but were scattered about in a loose grouping in the midst of the best agricultural land.

621 311 727 Land Loss At the present time (May, 1954) approximately 39% of the total land area of this village is in airfield, and an additional 34% of the total area has been ruined by activities related to its construction (sand dumped onto fields, top soil removed, erosion, etc.). There remains but 27% of the total land area for the use of the villagers, and of this only a small percentage is in arable land, since most of the good, flat farmland was lost to the airfield. The total amount of arable land remaining is [134] 11,895 'tsubo' (less than ten acres), and this averages out to about 148 'tsubo' or 0.12 acres per household, with approximately five persons in each house. The average amounts of arable land per household in Kanegusuku, Okinawa, and Kitazato compare as follows:

Kanegusuku --- 1514.2 'tsubo'
Okinawa --- 1037.2 'tsubo' (per farm household)
Kitazato --- 148.7 'tsubo'

Land loss to the airfield affected every family in the village; some families lost all of their lands, a very few managed to retain most, but the majority of villagers (70%) lost nearly all of their holdings. For example, the mayor of the village held 2470 'tsubo' before the war and now has 570 'tsubo' left; yet, he is considered one of the more fortunate. To compensate for their losses they now farm some land which was previously left idle: "We would not have farmed such land before the war as we are farming today." Some have rented lands from neighboring villages, and a few have been given land by relatives in these villages.

621 829 727 Land Payment The people of Kitazato strongly feel that they are not being paid adequate remuneration in terms of current rental values for their land. They are well aware of the fact that the same U. S. military

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Military installations have attracted people from all areas, and at 177
the present time over twenty-five percent of the total labor force is employed 727
by the military or in subsidiary occupations. Some of these people are drawn [464]
from the landless element which formerly would have emigrated. In other areas
land has been left idle by those who have sought salaried jobs in preference
to farming. In places, extensive military land use has greatly increased [311]
land pressure. The circulation of money has been accelerated, and new pat-
terns of living have evolved. Many miles of all-weather roads have been con- [491]
structed and the island transportation system has improved to a point where
villagers have a mobility undreamed of in the prewar era.

The major forces for change have been technological and economic. 177
Where changes have occurred in the social system, they have come about largely 178
as a result of these factors. Man has always tended to accept new things
faster than new ideas, but in final analysis these will alter ideas too. It
has been said that the streetcar and trains have contributed more to the
breakdown of the idea of caste in India than any other single factor; so too
on Okinawa, the changes effected by a new technology, greater circulation of
money, and improved mobility operate to alter the fabric of life. Most rural 177
Okinawans would be decidedly opposed to any overt action designed toward 369
weakening the unity of their village; yet, when they put aside farming to 621
commute daily to a city job, avail themselves of the newspapers, movies, and 178
radio programs emanating from the city, and no longer participate in labor
exchanges and other cooperative ventures, it is to precisely this end that
they are contributing.

It is the opinion of the author that the major forces for change in 177
contemporary Okinawa were already operative before the war. The real impact 178
of the American occupation has been a rapid acceleration of the forces of
change which have been slowly building up since the beginning of the century.

Aspects of Change in Rural Okinawa: Transportation One of the most im- 178
pressive changes in 491
post-war Okinawa with far-reaching cultural implications has been the im-
proved transportation system which has made possible a greater mobility. A
network of modern highways now girdle the land where formerly narrow dirt
roads and paths had sufficed. To one who had last seen the island in 1945
the contrast in 1954 was most remarkable.

The increase in motor vehicles has been more than ten-fold over the 178
prewar period. Most villages now have easy access to bus lines which connect [494]
to virtually all points of the island. Where formerly villagers but rarely
went to town, they now make such trips frequently. It is not uncommon in the [484]
Shimajiri and Nakagami areas of the island for an individual to commute each
day from his village to his place of employment in a military camp, town, or
city.

The improvement in transportation has enabled the farmers to bring 178
products to the best markets. Formerly most Kanegusuku products were sold 443
in nearby Itoman, but today with the advent of rapid bus service to Naha
many items are taken there for sale.

Statistics show (see chapter on Agricultural History) that since the termination of the communal land holding system in 1903, there has been a steady decrease in the amount of land cultivated on Okinawa. That this has continued unabated at the same time that the population has rapidly increased seems a paradox. Most certainly improvements in crop yields through research development have not been sufficient to offset this. Nor has the tax burden been excessive or crushing; in fact, quite the contrary is true since the Japanese substantially reduced land taxes when they abolished the communal system. What is more, the shortage of food has for many years necessitated importation of a considerable portion of the food consumed, and in view of the limited job opportunities in pre-war Okinawa, it seems unlikely that this means of livelihood would be overlooked. It would seem that the major reasons for this decline are cultural and historical. 178 241 [311]

It will be recalled that the farmer in the Okinawan kingdom lived in a state of serfdom; class differences were in effect those of caste. When freed from the restrictions by the Japanese, many were likely eager to depart from the farm village. The status of the farmer traditionally has been quite low on Okinawa. People dislike farming, and those who do farm state quite frankly that they are farmers only because they know nothing else, being poorly educated or possessed of little ability. No young men were heard to express a desire to become farmers, and no father wishes this occupation for his son. Pitts and the author noted in studying the household registries for their respective villages that not infrequently the first son has left the farm to seek employment elsewhere, quite contrary to usual Japanese practice. Farming is not a goal for the Okinawan youth today, and at the University of the Ryukyus the quotas for admission to agricultural studies were barely filled in 1954 whereas some of the other departments had three and four times as many applicants as openings. Centuries of a communal land ownership system left the farmer with no feeling of attachment toward his soil such as exists among the Chinese peasantry. Land was frequently reapportioned, and no plots were retained long enough by a given cultivator to give him a feeling of proprietorship. It is said that few ever tried to improve their holdings, as they felt these would soon be allotted to another. 178 241 554 [566]

The nature of taxation under the communal land system together with slowly rising population also made necessary a greater exploitation of land resources than is necessary today. The old tax rate was fixed and was set at a ratio of 40%. If the government had set 100 koku per year as the expected yield for a given village, then the government demanded 40 koku from that village each year. This may perhaps have been satisfactory to the villagers at the time of assessment, but as the population slowly rose there were more mouths to feed out of the villagers' 60 koku portion, and there was no respite from the tax demands in time of crop failure. Consequently, there was increasing pressure to bring more and more land under cultivation; undoubtedly, inferior, low-yield, idle soils were made into farm land. After the peasant was freed from this system and the trend toward sugar production began, foods were imported from outside, and the slow contraction of arable land figures began. 178 241 651 311

The average Japanese farm of 2 1/2 acres and the average Chinese farm of over 4 acres contrast strongly with the Okinawan average (and most are 241 433

241 average, since the range is narrow) of approximately one acre.[1] Even by the
433 most skillful and intensive gardening methods there are limits to what can
be extracted from the best of soils. One might say that the average Okinawan
farmer is engaged in sub-subsistence farming. With the traditionally low
241 status accorded a farmer and the minute size of his holdings it is hardly any
554 wonder that the Okinawan does not like farming and is eager to accept whatever
is available elsewhere.

178 Land loss to military installations has accelerated a process which
241 has been operative for fifty years. In this case, however, the effect has
been concentrated in certain areas and not distributed over the island at
311 large; consequently, there has been considerable hardship in these localities.
727 But the main point of bitterness where it has been so engendered is over the
loss of livelihood rather than over the loss of the land per se. The point,
they feel, is that not only have they lost their lands but that they also are
not receiving adequate compensation for this loss. It would not be an exaggeration to state that most perhaps would prefer to be landlords, under
reasonable terms, to the military than farm the land if it were available
again.

178 Okinawan food production has passed through three phases in the last
fifty to sixty years. During the first phase prior to the land reform of
433 1899-1903 there was a self-sufficiency of food in the rural areas. After the
reform, the Japanese subsidized sugar and did much to encourage its production,
which rose to a point 900% above local consumption. This led to a sharp decline in acreage planted in other foods, particularly grains---rice, wheat,
millet. Since 1943 there has been a shift toward increasing food production[2],
and sugar has dropped to about one-tenth its prewar level. In some villages
such as Kanegusuku where mat weaving was formerly of considerable importance
the irrigated fields formerly planted in sedge have been replanted with rice.
Despite the increasing emphasis on food production it is unlikely that the
village will ever return to self-sufficiency, for in recent years new tastes
have altered the diet and created a dependence on foods not produced within
the village.

Settlement Patterns The reconstruction of villages after the war
178 often did not follow the prewar pattern. Suttles states that prewar Yamada
361 was a scattered settlement made up of several small hamlets, whereas the new
postwar settlement is a nucleated one. The new site is at an important crossroads, while the heart of the old village is virtually empty. North of Yamada
on the Highway to Nago one can see where the new road has departed from the
old one; in several cases the villagers have moved closer to the new road
despite the fact that it was much dustier there.

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[1] Cressey, George B., Asia's Lands and Peoples, New York, 1944, p. 84, p. 191.

[2] Several informants stated that the word went out to the farmers in that year to concentrate all efforts on food production. Undoubtedly this was linked to the turn of events in the war for the Japanese.

APPENDIX "A"

128 This appendix contains figures upon which Maps 2 through 7 were based. List A is for Map 2, List B for Map 3, and so forth. The figures for Japan and Kagoshima are derived from the *Japan Statistical Yearbook*, 1950. All other figures are based on data in *Ryūkyū tōkei hokoku*.

● 311 List A Arable land under cultivation as a percentage of total land area.
241 The 31 December 1950 figures are used for area of arable land. Figures for total land area are for 31 December 1952. However, the calculation is valid as of the former date because the areas of political units did not change in the two years. The amount of arable land in Haha is negligible; the area for Tokashiki was not available in 'chō'.

311 List B Flooded fields (riceland) as a percentage of total arable land under
243 cultivation, 1950. The figures for Japan and Kagoshima are valid as of 1 August 1947. No acreage of riceland was reported from Ie Shima, Naha, Aguni, Minami Daitō or Kita Daitō.

161 List C Population density per square kilometer. The data for Japan and Kagoshima are valid as of 1 August 1948. The data for Okinawa Guntō are valid as of 31 December 1952.

List D Number of persons per acre of arable land under cultivation, 1950. Data for Japan and Kagoshima are valid as of 1 August 1948. The census of persons in Okinawa Guntō was taken on 1 December 1950. The data on acreage of arable land under cultivation were reported 31 December 1950. Inasmuch as December is not a month when new land is reclaimed, the map and figures may be considered valid as of 1 December 1950. No figure is given for Naha because the acreage of arable land is negligible. No figure is given for Minami Daitō because of the great acreage planted to sugar cane. About 9,400 'tan' of the 11,000 'tan' of arable land there is in this crop.

List E Percentage of increase in population, 1940-1950. Data for Japan and Kagoshima are not available for those years. Data for Okinawa Guntō are valid as of 1 October 1940 and 1 December 1950. A minus sign (-) denotes a net decrease. At the time of the 1940 census, some political units were not separate, but were included in towns or cities nearby; therefore the 1950 figure of necessity includes both areas as one.

List F Percentage of increase in population, 1950-1952. Data for Japan and Kagoshima are not available for those years. Data for Okinawa Guntō are valid as of 1 December 1950 and 31 December 1952. The total percentage of increase in the 25 months was 5.55%---these percentages are reported on page 76 of *Civil Affairs Activities in the Ryukyu Islands*. On the map any area with an increase of less than 5.55% and a decrease of less than 5% was considered an area of moderate emigration. Any area where the decrease exceeded 5% was considered as an area of excessive emigration. An area with more than 5.55% increase but less than 10% increase during that period was considered an area of moderate immigration. Areas in which the increase exceeded 10% are considered as having urban characteristics.

Political Unit	List A	List B	List C	List D	List E	List F
Japan	32.8	55.4	217.7	6.30	----	----
Kagoshima	19.2	37.5	225.5	5.14	----	----
Okinawa Guntō	15.7	16.7	424.6	12.40	22.8	8.9
Kunigami	3.1	36.7	57.1	9.58	20	-7.0
Ogimi	10.3	25.8	139.3	7.72	15	-3.8
Higashi	5.9	33.8	487.6	8.27	11	-5.5
Haneji	9.7	52.0	172.7	8.76	43	-2.0
Yagaji	24.9	26.9	745.2	9.35		-20.5
Nakijin	21.6	13.7	382.2	8.58	29	3.0
Kamimotobu	28.4	4.2	579.7	10.20	35	-1.0
Motobu	12.1	11.3	442.6	17.27		-5.8
Yabu	9.8	29.4	258.6	10.77	45	-3.2
Nago	7.7	46.0	371.2	19.38		15.0
Onna	10.0	32.2	143.9	6.79	33	-2.1
Kushi	4.2	47.2	55.6	7.72	36	-7.8
Ginoza	10.9	25.3	170.1	7.88	56	-11.7
Kin	9.5	35.0	175.1	8.21		-7.0
Ie	24.0	----	281.9	5.84	-4	3.5
Iheya	16.4	39.2	127.2	4.88	47	6.2
Izena	36.1	40.8	505.9	4.63	9	3.7
Ishikawa	15.7	37.3	977.0	26.90	115	4.9
Misato	13.6	14.5	686.0	23.68		1.6
Tonagusuku	35.1	7.3	699.4	14.12	55	7.1
Katsuren	27.5	5.6	848.4	15.32	44	5.2
Gushikawa	21.9	10.6	983.2	21.40	99	-1.2
Goeku	3.7	16.0	861.7	89.50	128	13.3
Yomitan	7.3	3.9	473.6	29.00	4	5.4
Kadena	4.2	.4	562.3	46.75	11	19.2
Chatan	.1	11.8	853.8	267.20		2.5
Kitanakagusuku	16.0	8.8	700.5	19.43	6	2.1
Nakagusuku	20.1	4.1	631.2	14.60		3.5
Ginowan	21.9	9.3	926.0	17.92	24	5.8
Nishihara	42.2	1.2	457.1	5.73	-21	10.2
Urasoe	24.0	12.0	705.2	12.32	8	4.0

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Political Unit	List A	List B	List C	List D	List E	List F
Shuri	23.9	.2	9393.9	59.1	14	9.5
Naha	----	----	10447.5	----	-33	14.4
Mawashi	13.0	2.1	3605.6	71.5	83	15.8
Oroku	11.1	2.0	1157.4	45.8	33	6.6
Tomigusuku	41.7	9.7	490.4	6.36	1	-6.0
Itoman	25.3	16.0	8927.5	231.5	116	10.2
Kanegusuku	47.8	9.4	574.6	5.72	12	0.8
Miwa	36.6	1.8	347.8	4.60	-13	7.1
Takamine	30.2	8.1	389.4	5.84	- 8	2.5
Kochinda	40.4	8.9	566.2	6.28	- 6	2.4
Gushichan	38.3	15.5	480.0	5.90	- 5	0.4
Tamagusuku	32.0	23.1	561.2	8.25	27	-2.2
Chinen	29.3	14.2	589.3	10.20	28	[illegible]
Sashiki	24.2	16.5	728.8	14.97	33	-3.2
Yonabaru	20.0	.5	1541.5	34.9	- 5	16.3
Ōzato	38.0	11.5	544.1	6.60		
Haebaru	56.3	4.0	693.9	5.57	-16	3.2
Nakazato	17.3	39.0	213.1	6.31	24	-1.4
Gushikawa	27.2	23.6	264.9	5.38	20	1.6
Tokashiki	----	22.0	51.4	7.39	11	-10.9
Zamami	8.4	18.7	99.6	6.74	-13	- 3.5
Aguni	34.0	----	320.2	4.52	- 1	11.5
Tonaki	27.1	1.3	264.5	7.39	64	- 1.0
Minami Daitō	36.5	----	67.3	----	-54	15.4
Kita Daitō	26.4	----	39.4	1.21		-14.0